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ON WORM NODULES IN CALVES: SOME NEGATIVE OBSERVATIONS AND EXPERIMENTS.

By **William Nicoll, M.D., Ch.B., D.P.H. (Cantab.),**
Australian Institute of Tropical Medicine, Townsville, Queensland.

The following observations and experiments were made in the hope of throwing some light, however small, on the baffling life-history and development of worm nodules in cattle. The matter has already been attacked from several different points of view, but the amount of actual positive evidence which has accumulated has been remarkably small. It is this sparsity of definitely positive observations which renders it so difficult to construct any satisfactory working hypothesis. Up to the present, the following are the chief positive observations which have been made:—

1. The larval worms can make their escape from the parent worm and can pierce the dense, fibrous capsule of the nodule and thus find their way into the surrounding tissues. This observation has been made independently by Gilruth and Sweet (1911), Breinl (1913), Cleland (1914) and myself (1914), and, consequently, may be regarded as a well attested fact.

2. The larval worms can make their way up to the surface of the body, and bore out through the unbroken skin. This observation was made by Breinl (1913), but has not been confirmed.

3. The larval worms are to be found in the circulating blood stream. This observation is due to De Does (1904), but numerous attempts to confirm it have resulted in failure. It must be noted that, according to Georgina Sweet (1915), De Does admits that the larvæ observed by him "may have been those of some filarial worm other than *Onchocerca gibsoni.*"

4. An unencapsuled adult worm has been observed by Cleland (1914) in the tissues around the knee joint. Five other adult worms were found unencapsuled near the hip joint.

5. Cleland (1914) discovered that uninfected cattle, transported to Milson Island, Hawkesbury River, New South Wales, became infected from infected cattle already on the island. This shows that all the conditions and agents necessary for the transmission of the parasite are present within the restricted area of the island.

6. Certain flies (*Musca* and *Stomoxys*) and mosquitoes can ingest *Onchocerca* larvæ from freshly opened nodules, but the larvæ do not live more than a day in *Musca*, nor more than three days in *Stomoxys*. These observations were made by Cleland (1914).

7. Nodules have been observed in the brisket of a sheep by Cleland (1914).

8. Larvæ have been found in the blood of patients infected with *Onchocerca volvulus*, a worm distinct from but closely allied to *Onchocerca gibsoni*. They have also been found in the lymphatic glands. The former observation was made by Fülleborn and Simon (1913); the latter by the same authors, and by Ouzilleau (1913).

Only a few critical comments are necessary on the foregoing. With regard to Nos. 1 and 2, it is unquestionable that the larvæ, despite their apparently delicate structure, can pierce the tough capsule of the worm nodule, and make their way subcutaneously to areas quite remote from the nodule. Cleland remarks that he has found the larvæ at a depth below the surface of the skin much less than the length of the proboscis of the biting fly *Stomoxys*. This indicates the possibility that *Stomoxys* might readily ingest one or two larvæ during the process of feeding. His further observation that the larvæ were sometimes found in close proximity to the hair sheaths, suggests that they might make their escape to the surface in this direction, an occurrence which Breinl's observations tend to support.

With regard to No. 3, no further comment is necessary. The fourth observation, although interesting, does not appear to throw light upon the mode or place of entry of the parasite. No. 5 is important because it shows that in a circumscribed area, naturally free from infection, all the necessary factors are present for the transmission of infection. It can hardly be doubted that the same holds good for many other areas in New South Wales, perhaps for the whole State; possibly the same may apply to Victoria, and, indeed, the whole of Australia. Gilruth and Sweet (1912) have observed that the infection has already spread into the northern districts of New South Wales. They consider that the disease is slowly but surely spreading southward, and in the slowness of the spread they find an argument in favour of transmission by a wingless insect, such as a louse. It is not improbable that it is the absence as yet of a sufficient number of infected cattle that has prevented the spread of the disease throughout New South Wales. This would indicate that stringent measures should be taken to prevent the importation of live stock from infected areas.

With regard to No. 6, little can be said. The experiments on which the observations were based were unnatural and inconclusive, though they seem to indicate that a biting fly, such as *Stomoxys*, is a more suitable intermediary host than a non-biting fly, such as *Musca*. This conclusion, however, might be deduced *a priori*.

The seventh observation is of considerable importance, as it shows that sheep may occasionally be exposed to the conditions or attacked by the agents which serve to transmit the parasite.

Apparently the first note of the occurrence of nodules in sheep was made in the Annual Report of the Department of Agriculture and Stock, Queensland, for the year 1910-1911, but the identity of the

nodules with those in cattle was not confirmed until Cleland's observations were published. As regards the absolute identity of the parasite in the two cases, however, Cleland is not particularly emphatic. He remarks: "The very rare occurrence of worm nests in this animal practically excludes it being a new (*i.e.*, different) species, since one fails to see how such a species would maintain its existence, unless it were relatively abundant." This hypothesis is hardly tenable, since species which are rare, or are said to be rare, are met with throughout the whole natural world. Cases of this kind are by no means uncommon amongst parasitic worms. In many instances species are regarded as rare simply because they have not been observed frequently. On the other hand, there are numerous cases in which species have been found to be of uncommon occurrence, though searched for assiduously. Without expressing any very definite opinion on the matter, it must, therefore, be remarked that the rarity of worm nodules in sheep does not preclude the possibility that they are due to a parasite distinct from that of cattle, though the probability is that the two are identical.

It will almost certainly be found that worm nodules in sheep are commoner than has hitherto been supposed. As already mentioned, they have been recorded from Brisbane, and I am informed on good authority that they occur in certain parts of North Queensland. Unfortunately, I have not been able to obtain samples of these nodules, and so cannot vouch for the accuracy of this observation.

With regard to No. 8, the observation is undoubtedly interesting. Fülleborn appears quite satisfied that the larvæ observed in blood smears are identical with those removed from the mature female worm, the only point of doubt being whether the larvæ actually occur in the blood stream or in the lymphatic vessels. The number of larvæ obtained was small, but large enough to show that a considerable number must have been present in the subcutaneous tissues. Naturally, we cannot deduce an absolute analogy between the life-history of *Onchocerca volvulus* and *Onchocerca gibsoni*, but as the two species are so closely related in structure and mode of life, we should be inclined to expect that their developmental cycles follow closely similar lines.

In addition to the foregoing observations of a definitely positive character, there have been a certain number which may be regarded as indeterminate. Of this nature, for instance, are the observations of Gilruth and Sweet (1911 and 1912), Sweet (1915) and McEachran and Hill (1915). In these works much light has been thrown on the occurrence and distribution of nodules, not only in Australia, but also in other parts of the world. McEachran and Hill's experimental observations are interesting, but somewhat inconclusive. The positive facts which they adduce are that clean cattle can become infected in the Northern Territory, and that the transmitting agent is, in all probability, not a flying insect. Exception might be taken to the last statement, but the experimental result is undoubtedly suggestive.

It was first observed by Gilruth (1911) that the majority of infections occurred in young cattle, and that older cattle do not frequently become re-infected. This observation has been confirmed with some qualification by most workers who had an opportunity of making an extensive survey. From this it would follow that young cattle would afford the best chance of observing the early stages in the development of the parasites.

Again, the suggestion has been thrown out by Johnston and Cleland (1910) and by Cleland (1914) that the formation of nodules may be an accident in the life of the parasite, and that the larvæ are produced while the female worm is living in an unencapsuled state. The validity of this suggestion, however, is negatived by the fact already mentioned, that the larvæ find little difficulty in making their escape through the nodule. A similar suggestion was made to me by Dr. Breinl, namely, that larvæ may occur in the blood only during the early stages of infection in young animals. It was with the view of testing this suggestion and of confirming the observations of Cleland, Ouzilleau, and Fülleborn and Simon, that the present series of experiments was undertaken.

It was decided to work with calves from six to twelve months old. As a matter of fact, the calves obtained varied from five to eleven months, the majority being between seven and nine months old. It was found impossible at the time to obtain calves of a younger age, and it was considered inadvisable to use any over a year old. Ten calves in all were used, and they were, without exception, bred and reared on the Townsville Common, a wide stretch of variegated land, on which approximately seven or eight hundred head of cattle were grazing. These cattle are removed and replaced by others from time to time, but, according to Dr. Breinl, who has made a continuous study of them, a large proportion of them are constantly infected with nodules. The few which I have personally examined were all infected, though not to a heavy degree. From this it would appear that the Townsville Common, like most other parts of Queensland, is an infected area.

The experiments were carried out from January to July of the present year (1915). It proved to be an abnormally dry period, one of the driest on record during the past forty years. Very little rain fell, the ground was parched and dry, and most of the water holes eventually became almost dried up. In addition, the temperature during the early part of the year was unusually high, records of over 100° F. being made on many days, whilst even towards the end of the period the temperature rarely fell below 60° F. The mean maximum temperatures for these months ranged from 90° in February and March to 78° in June, whilst the mean minima ranged from 77° in January and February to 61° in June. The total rainfall recorded at the Institute was 11.8 inches. During the preceding five months the rainfall was 4.8 inches, so that the total fall for the twelve months was only 16.6 inches. It is quite possible that these abnormal conditions

may have had some effect upon the results of the present experiments.

The technique of the experiments was as follows:

The calf was brought in early in the week and examined thoroughly for worm nodules. All these examinations were negative. The skin of the neck was then shaved, and a cannula inserted into the jugular vein. About 300 c.cm. of blood was drawn off into an equal amount of 3% solution of sodium citrate. Except in the case of the first calf, the citrated blood was then hæmolysed by the addition of distilled water, and then rapidly filtered through medium grade filter paper, the process taking from 45 to 60 minutes. The filter papers were then inverted and thoroughly washed in distilled water, after which they were carefully examined under the microscope. The washings from the filter papers were then centrifugalized, and from the deposit films were made. These were examined, both stained and unstained. In each case about 25 to 40 films were thus gone through, but in every case the result was negative. No larvæ were found in any of the films. In the case of the first calf, the citrated blood was centrifugalized without previous hæmolysis, but this proved to be an extremely tedious process.

This method of dealing with large quantities of blood was considered desirable in view of the negative results which had attended the efforts of Johnston and Cleland with simple needle puncture.

On the day following the bleeding, the calf was killed, the skin was carefully removed and smears were made from various parts of the subcutaneous tissues. Smears were also made from all the superficial blood vessels. Thorough examination was made for the presence of any nodules, not only superficially, but also in the deeper layers of the muscles. None were found. In addition, search was made for the presence of unencapsuled worms, adult or larvæ, but this also proved fruitless.

Particular attention was paid to the various joints of the legs. The tissues around each were thoroughly examined, both superficially and deeply. The joints were also opened and the bursal fluid collected and examined under the microscope. Pieces of subcutaneous and muscular tissue were also removed. Some parts of these were teased out in a fresh state, other parts were steeped in filtered rain water overnight, in the hope that any worms present would make their escape into the water. The water was centrifugalized the following day and the deposit examined microscopically.

A special study was made of the lymphatic glands. These were excised in every case and divided into two. One half was fixed in formalin and cut into serial sections, the other was either teased out or allowed to soak in water overnight, the water being then centrifugalized and the deposit examined.

In this way upwards of seventy smears were made from each calf, and each of these was examined at least twice. Every one proved negative.

Summary and Conclusions.

1. Ten calves were examined. None were infected with worm nodules. In none of them were any *Onchocerca* larvæ found in the blood or in any other situation in the body. No unencapsuled adult worms were found.

2. It is possible, but extremely unlikely, that the abnormal climatic conditions have had some effect on these results.

3. As all the calves were apparently uninfected with *Onchocerca*, either in free state or encapsuled, it was hardly to be expected that larvæ would be found in the blood unless some adult worms were present which escaped detection. The observations are therefore inconclusive in regard to this matter.

In conclusion, I desire to acknowledge the help received from Mr. J. W. Fielding, Chief Laboratory Assistant of the Institute. Without his co-operation, these experiments would have been almost impossible, or at any rate incomplete. He has rendered invaluable and energetic service in obtaining the calves, a matter requiring no little diplomacy, in dissecting and in preparing and examining the films.

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SOME CASES OF MENINGOCOCCUS INFECTION.[1]

By **R. O. Douglas, M.S.,**
Surgeon to the Bendigo Hospital.

In the brief review of the cases that I shall deal with to-night, I must apologize for the fragmentary way in which some of the records have been kept. The majority of the meningitis patients were admitted while the military wards were being established and equipped here. Within a week from the first notice received, over seventy military patients

[1] Read at a Meeting of the Bendigo and Northern District Branch of the British Medical Association on October 15, 1915.

were admitted, and thereafter for some time the numbers remained between 80 and 90. This rush of extra work allowed no time for anything but the most hurried examinations. Many of the records have been compiled in part from notes dictated to the nurses and entered on the diet sheets by them. Many examinations and much laboratory work that should have been carried out have necessarily been omitted, and others done only in a spasmodic and fragmentary manner.

Since the outbreak of the meningitis epidemic in Bendigo, 21 cases of definite meningococcal infection have been treated here, and all but one patient developed meningitis. The one exception was a nurse in the ward, who got an acute meningococcal conjunctivitis. Of the remaining 20 patients, six have died, six have been discharged cured, four are quite convalescent, and in four the illness still continues, and will probably end fatally in two. At present, the recoveries are 50% and the deaths 30%. Twenty per cent. of the patients are still ill.

Cerebro-spinal meningitis has been present sporadically as posterior basic meningitis for many years, but this is the first considerable epidemic experienced in Victoria. Australian soldiers were dying in Egypt of meningitis before the disease broke out here. The newspaper reports did not specify the type of meningitis, but it seems extremely likely that the disease in its epidemic was brought back from Egypt by contacts with cases there. The epidemic form is a disease markedly associated with military camps and garrison towns, and in this respect the present Victorian epidemic is no exception.

Eleven of our patients were military and nine civil.

The youngest civil patient was five years, and three others were under ten. Two cases occurred between the ages of 10 and 20. The other three were 27, 35 and 54 years old respectively. Of the military, seven were between the ages of 18 and 24. The others were 27, 31, 38 and 44 years of age. In all our cases, the presence of Gram-negative intra- or extra-cellular diplococci was demonstrated. In a considerable number of cases inoculation on solid media was carried out.

Modern research seems to show more and more that the portal of entry into the human body, is, in the majority of, if not in all, cases, the naso-pharyngeal mucous membrane. Personally, I regard cerebro-spinal meningitis as a complication of an infection which ordinarily is closely allied to acute coryza, the difference being that the former is due to the meningococcus, while the latter is due to the *micrococcus catarrhalis*. The *micrococcus catarrhalis* remains localized in the naso-pharynx, while in the meningococcic naso-pharyngitis, the organism in some cases invades the blood stream, setting up a bacteræmia, and the meninges, causing the so-called cerebro-spinal fever.

It is likely, on the grounds of the very close resemblance between the meningococcus and the *micrococcus catarrhalis*, that far from being slightly infectious, the meningococcus infection is about as contagious as coryza. If this be so, it is certain that great numbers of people will develope meningococcal naso-pharyngitis, but probably only very few of these cases will be complicated by bacteræmia and meningitis.

I do not for an instant believe that the so-called "contact carriers" are carriers at all in the sense employed, for instance, for carriers of *bacillus typhosus*. These "carriers" are actually suffering from meningococcal naso-pharyngitis, which is very closely comparable to the common cold. The great majority of these infections are, like the *micrococcus catarrhalis* infection of the common cold, wiped out in a few hours, or days, by the bodily resistance. There are probably certain numbers of chronic cases of meningococcal naso-pharyngitis, just as there are markedly chronic cases of coryza. It is to cases like these that the lighting up of the epidemic again next winter will probably be due.

I hold most emphatically that meningococcal infection is of a highly infectious nature, but that the complications of septicæmia and meningitis only occur in a very small percentage of persons attacked. The foregoing statements are largely theoretical, but most recent laboratory work points very strongly in the direction indicated. The importance of the foregoing will be evident when we come to deal with the prophylaxis of the disease.

I do not propose to discuss the rather extraordinary gonococcus theory, and the prophylactic effect of a gonococcal urethritis.

The incubation period of cerebro-spinal meningitis is unknown, and so long as the meningitis is regarded as the primary disease, will certainly remain so. The meningitis is almost certainly a complication of a naso-pharyngeal infection, and it would be just as profitable to try to estimate the incubation period of scarlatinal nephritis by looking for contact with other cases of scarlatinal nephritis without taking any cognisance of the numerous cases of uncomplicated scarlet fever that might have intervented between the two cases.

There was one very interesting case in our series. A convalescent girl, aged 15 years, had negative cultures from the mucus of the nose and pharynx taken on September 13, 1915. On September 14, 1915, she returned home. On the 17th her little sister developed an inflamed eye; on the 18th she got a profuse nasal discharge, and both eyes were intensely inflamed. On the 20th she vomited and got typical meningococcal spots on the body. From the eyes and cerebro-spinal fluid the meningococcus was recovered in pure culture, while nasal swabs gave a very profuse growth. The illness followed a moderately severe course till the seventh day, when some new serum was obtained. Thereafter the disease was quickly checked. If this were a case of infection being brought back by the elder sister, the incubation was evidently short.

From the limited experience of this epidemic, it must be held until it is proved to the contrary that the incubation period of the naso-pharyngitis is, as in coryza, extremely short, and that the period elapsing between the invasion of the nasal mucosa and the general blood infection is likewise very brief.

In fourteen of our cases the patients or parents volunteered the statement that they had a cold in the head. In six of these further enquiry showed that they got sneezing attacks and profuse nasal secretion just a few hours before becoming very ill. The others had more intense and prolonged attacks. Of the remaining six, three were unconscious or delirious on admission, and never recovered sufficiently to give details, and three did not remember much about their condition just before admission. In three of the six patients it is noted on the diet and treatment charts that a nasal discharge was present.

In practically every case the earliest marked symptoms complained of were "pains all over" and headache, usually frontal and very intense in type. In two cases that were under observation before the headache and vomiting commenced, the temperature rose progressively for two days. Within a short period after the onset of the headache, or practically accompanying it, more or less frequent vomiting occurred.

Regarding the above as the starting point of complications, the cases were received in the following stages: Two were at least a week old. One recovered, and one is still under treatment. In one the period is not known. Both these cases are now past the fifth week. Three were received on the fourth or fifth day; two recovered and one died. The case starting as conjunctivitis was received three days from the onset of the conjunctivitis, and the patient is now convalescent. In three cases the illness was twenty-four hours old. One patient recovered, one is convalescent, and one died. Three patients were admitted approximately twelve hours after the onset. Of these, two recovered and one is still under treatment. In four the illness began five to eight hours before admission. One recovered, one is still very ill and two died. In two the illness was four hours old. One recovered and one died. In one patient, a tabetic, the illness developed in hospital; he died.

In this series the time of commencing treatment was very early. Of the eight patients received from the Bendigo Military Camp, the time elapsing between the onset and admission varied from four to twelve hours, the average being seven hours. This remarkable record is due to the great vigilance of Dr. Gaffney, the Officer in Charge of the Camp, in sending in suspicious cases for immediate laboratory diagnosis. These cases offered a good opportunity for observing the early symptoms and signs, of which the principal will now be briefly discussed. This disease is so protean in its symptomatology, and changes take place with such startling rapidity, that no more than a very brief discussion of each sign or symptom can be given.

In fourteen cases headache was intense, and in ten of these it was the earliest symptom. In the other four the vomiting and headache came on together. Three patients had no headache, or, at least, complained of none, till after the vomiting or rash had appeared. In three cases no information could be obtained. The headache usually disappeared early.

The most constant of all the early symptoms was vomiting. It occurred in every case. The early vomiting was not markedly projectile in type.

Delirium was one of the most marked symptoms. It varied widely in onset, type, intensity and duration. Two patients have had no delirium, but one has had persistent headache and vomiting. They are still under treatment, and one is extremely ill. The remainder has exhibited more or less definite delirium, varying from an evening and nocturnal wandering to rapid and deep coma. In five cases the illness started with nocturnal delirium, but the patients were quite conscious in the morning. Two have recovered, and three have died. Two had persistent mental confusion, and there was a tendency to get out of bed. Both patients recovered. Ten patients had a rapid onset of delirium within a few hours; four of them became comatose within six hours. Two of these patients died, one five hours after the appearance of headache, and the other in about three days. One patient had sudden coma, without delirium. He died in relapse, after being almost convalescent.

Our experience seems to be that the cases with slow development, in which delirium is not marked and the other symptoms little startling at first, are much more obstinate to treat, and the prognosis much graver than the apparently fulminating cases. In the latter, the prognosis is fairly good, provided that the patients survive the first few days. The rapidity and catastrophic character of the onset and early progress led us hopelessly astray in forming a prognosis. The number of cases is too small to base any certain conclusions on.

In the majority of cases there is a very typical rash. It usually appears very early. It was present in all our early cases except one. This patient was admitted in a dying condition, five hours after the onset; a rash was not looked for until after death. In three cases the rash was not typical. In three, including the fulminating case referred to above, there was no sign of a rash, but in the other two cases it appeared very late.

In its most typical manifestation, it is present before there is any evidence of marked meningeal infection. In four of our cases the rash was well developed, while the cerebro-spinal fluid was quite clear macroscopically. Pus cells and definite meningococci were seen twice; in one case there were occasional pus-cells, and in the other the fluid was apparently quite clear. No growth was obtained on culture media. Later on the fluid in all four cases became very markedly purulent in type.

The rash has a very peculiar purple colour, and appears rapidly all over the body and limbs. It is usually profuse, but may be very scattered. The individual spots are typically small, petechial blotches, apparently in the skin, not raised like typhoid spots. They fade to some extent on pressure, leaving a brownish stain, and, as soon as the pressure is removed the purple colour returns. They appear with extraordinary rapidity. In one case with a four hours' history, there were a few scattered spots on admission. An area on the abdo-

men about four inches by three inches clear of spots was marked out, other spots that were already present were ringed. Within thirty minutes there were about half-a-dozen spots in the area, and some of the ringed spots were almost faded. The rash may develope or reappear during the first week or more. In four cases there was no trace of a rash at the end of 24 hours from the onset, though it was well developed at four, six, six and twelve hours respectively. The rash may be very bright at first, and subsequently acquire the typical purple hue. The same spots may remain visible for much longer than 24 hours.

There was no case of purpuric eruption. One patient had a very profuse vesicular eruption on admission, like the rash in severe chicken-pox. This patient was not seen early enough to determine if the vesicles arose from petechiæ. I could not ascertain whether the extent or type of the rash bore any relation to the ultimate result of the disease.

The rash, from the evidence of these early infections, is probably present far more often than is usually thought to be the case. It is an indication of a bacteræmia, and not of meningitis. When once the bacteræmia arises, the meningitis follows rapidly. Unfortunately, no serum was available for these very early cases. It would have been extremely interesting and important to see if an injection of serum in the early stage would have aborted the meningitis.

The rash, when present in typical form, was regarded as diagnostic of the meningococcal bacteræmia.

In twelve of our cases remarkable patches of erythema developed somewhat later than the usual rash. These areas were of considerable extent, not raised, of an even, rather bright red colour, with no trace of purple, and with sharply defined edges. They seemed to develope mainly over light pressure areas, between two cutaneous surfaces. They were seen on the inside of the ankles and knees, and after the hand rested on the abdomen. They also appeared elsewhere. On two occasions only were they situated on the back or hips. They appeared and faded with great rapidity.

This erythema is apparently distinct from the almost constant redness, and occasionally irritated looking dermatitis that appears over the lower portion of the *triceps brachii*, which I am inclined to regard as traumatic and due to restlessness or delirium.

In all our cases except two the temperature was raised on admission. In the two instances it was 95° and 97.6° F. respectively. Both patients had high fever within a few hours. The temperature varied between 100° and 102° in eight cases, between 102° and 104° in eight others; once it was 105°, and once 105.8°.

The pulse-rate was extremely variable; the slowest was 64, the most rapid 142.

The respirations were nearly always raised. In nine instances the respirations were above 30; in one they were 40, and in another 42. These rapid respirations were all in early cases There was not much resemblance to the pneumonic type of breathing. The type resembled a person out of breath from exercise.

In four cases a leucocyte count was carried out on admission. In each case the result was above 25,000. They were all cases of at least 24 hours' duration.

In all early cases the nervous signs typically associated with meningitis were regularly and entirely absent. The earliest nervous sign, apart from the headache, was usually a more or less rapidly developing mental obfuscation, usually increasing toward the evening, and was accompanied by a general hyperexcitability and irritability. Sometimes it developed into active or maniacal delirium within one or two hours, and occasionally it passed into coma with almost lightning rapidity. This was the most interesting phase of the disease, but when an ambulance load of men was received, all very sick and all with headaches and high temperatures, there was very little time for note taking.

In none of the early cases was there any head retraction or Kernig's sign. The patients frequently complained of pain in the back of the neck, but the head could be flexed on the chest in every case. Well marked Kernig's sign in one leg within six hours of the onset was noted once. All the other reflexes were normal.

The plantar reflexes were very brisk in two of the early cases. There was no plantar response in three; the knee-jerks were absent in two, and the reflexes were normal in five.

The head retraction, when developed, varied from a slight pain in the back of the neck on flexion, to the most intense tonic contraction. Fourteen patients had definite tonic retraction. In five of these it was very well marked, and in two most intense. These two patients are now convalescent.

Kernig's sign was usually present at some stage of the attack. In four patients it was so marked that the heel could not be lifted from the bed. Two patients could not lie on their backs for some weeks, on account of the opisthotonus. It was a remarkable, but probably an accidental circumstance that in five cases Kernig's sign appeared earlier and was more marked in the right leg than in the left.

The mental condition is extremely significant in the early stages, but the other signs, *e.g.*, reflexes, etc., appear to be of no diagnostic importance in the bacteræmic stage.

(*To be continued.*)

A PRELIMINARY NOTE ON THE TREATMENT OF PERFORATED DUODENAL ULCER.

By **Alan Newton, M.S. (Melb.),**
Surgeon to Out-Patients, Melbourne Hospital,
and
W. W. S. Johnston, M.B., B.S. (Melb.),
Captain, A.A.M.C.; late Resident Surgeon, Melbourne Hospital.

(*Continued from page* 510.)

Our investigations have been based on the observations made in 21 cases. In the following table the principal details are summarized;—

Case No.	Sex.	Age.	Duration of Symptoms Before Operation.	Time Since Operation.	Type of Op'ration	Bismuth Meal Investigation.	Subsequent History.
1	M	38	4 weeks; pain after food	9 months	S	No pyloric obstruction; peristalsis normal; no hypertonia	No discomfort since operation
2	M	50	No previous history	1 year	S	No obstruction; no hypertonia	No discomfort since operation
3	M	53	3 months; pain 1 hour after food	4 months	S	Stomach empty; 3 hours hypermotility	No post-operative symptoms
4	M	33	Onset of vague pain 2 days before perforation; no previous symptoms	18 months	S	Stomach empties well; hypertonic position; peristalsis active	Six months after operation suffered from distension and slight pain after food; now better
5	M	55	No symptoms before perforation	3 years	S	Stomach normal	No symptoms; feeling well
6	M	40	Had pain and distension for 3 years; appendicectomy 18 months ago	2 years	S	Peristalsis active; rapid emptying	Occasional feeling of distension, but is much better
7	M	33	Pain after food for five years	7 years	S	Nothing abnormal detected	Occasional constipation, otherwise well but for a ventral hernia
8	M	33	7 years; vomiting, anorexia, hæmatemesis, melaena	17 months	S	No hypertonus, but empties well; no abnormal peristalsis	Feels very well
9	FL	22	3 weeks; pain after food prior to sudden perforation pain	3 years	S	Stomach high; hypertonic	For twelve months has had slight pain and distension after food
10	M	34	2 months; pain about ¼ hour after food	3 years	S	Marked peristalsis; high hypertonic stomach	Under treatment for signs of recurrence
11	M	33	6 months	16 months	GE	Some bismuth is passing through pylorus, but G.E. opening is acting well	No symptoms
12	M	30	16 years	7 years	GE	Bismuth passes through pylorus and G.E. in equal parts; hypertonus	Has attacks of indigestion, nausea and vomiting
13	M	22	Vague pain after food and constipation for 12 years	6 months	GE	Very little bismuth through pylorus; G.E. very free	Occasional swelling after meals; otherwise well
14	M	55	None	3 years	GE	Opening functioning very well; very little through pylorus	Quite well since
15	M	27	12 years; pain 1 hour after food and distension	19 months	GE	G.E. and pylorus equal amounts; hypertonus	Last nine months vague pain and flatulence, less severe than before operation
16	M	33	3 years	12 months	GE	Very little bismuth through G.E.; hypertonus	In hospital; signs of recurrence of ulcer
17	M	45	3 years	18 months	GE	G.E. contracting; pylorus acting freely	Very well if careful of his diet
18	M	27	3 months	18 months	GE	G.E. acting well	No symptoms
19	M	41	7-8 years; pain 1 hour after food	5 months	GE	G.E. acting well, though some goes through pylorus	Two short attacks of pain and vomiting since operation
20	M	45	12 months	4 years	GE	G.E. contracting; pylorus acting well	Slight distension, occasional pain and vomiting
21	M	52	1 year; pain and distension	2 years	GE	G.E. and pylorus both acting; hypertonus; more food passing through pylorus	Well for 18 months; for 6 months pain after food, mild in character

S = Treatment by Suture of the Ulcer. GE = Treatment by Suture of the Ulcer and Gastro-Enterostomy.

Reports of Cases.

A CASE OF DEATH FOLLOWING AN INTRAVENOUS INJECTION OF GALYL.

By **H. Hastings Willis, B.Sc., M.B., Ch.M. (Syd.),**
Resident Medical Officer, Royal Prince Alfred Hospital.

Death after injection of arseno-benzol drugs is sufficiently uncommon to afford an excuse for the publication of the following notes of a recent fatal injection of galyl in the Venereal Clinic at the Royal Prince Alfred Hospital.

P.J.A., a single man, aged 30, applied for treatment on August 30, 1915, for a hard sore on the penis of ten days' duration. On examination, an indurated sore was found in the sulcus, with indurated glands in the groin. A Wassermann test was carried out with a negative result. On September 8 the glands along the posterior borders of the sterno-mastoid muscles were found to be enlarged and hard. A diagnosis of generalized syphilis was made, and treatment commenced with an injection of min. v. mercurial cream (containing gr. ½ of metallic mercury), deep into the muscles of the buttock, the patient being at the same time advised to procure salvarsan.

On September 15 he received an intravenous injection of galyl, corresponding to 0.9 gm. neo-salvarsan, without misadventure.

A week later (September 22), he was given a similar dose, in the usual way. The operation was performed easily, and the patient appeared quite well, and got up off the couch, holding a pad of cotton wool over the site of injection. Three minutes afterwards he said he was faint, and staggered. He was assisted on to a couch, and, in reply to questions, said he felt tingling sensations all over him. His respiration was unaffected, and his pulse full, regular and normal in rate. About two minutes later he got up from his couch, walked across the room, and vomited. He broke out in a profuse perspiration, and would not reply to questions, though he appeared to understand what was said to him. He was seated in a chair, when, quite unexpectedly, he fell on to the floor, became unconscious, and passed urine involuntarily, while his pulse became feeble and intermittent, and his breathing irregular and stertorous. He was then admitted to the Emergency Ward.

On examination there, at 8.30 p.m., he was found to be unconscious, his pupils were equal and small, his eyes not deviated. Both the light reflex and the corneal reflex were absent on the right side but present on the left. His muscles were completely relaxed. Breathing was shallow and Cheyne-Stokes in character, and his pulse 64, regular, and of good volume and tension. His colour was good and his temperature 97.6° F. He was bathed in a profuse, cold perspiration.

At 9 p.m. his pulse-rate was 52 and his breathing was less shallow, but still of the Cheyne-Stokes type.

At 9.5 p.m. he had a convulsion, in which his respiration became quick and stertorous, the cheeks being blown out with each expiration. He became rigid in all his limbs, but no definite attitude was adopted. All his reflexes were exaggerated, and Babinski's sign and ankle clonus were present on both sides. His eyes were deviated strongly to the left, and all eye reflexes were present. This convulsion lasted three minutes, and, after it, breathing became quiet and shallow, but the deviation of the eyes and the increased reflexes and double Babinski's sign remained until the end.

At 9.15 p.m. he had another convulsion with stertorous breathing, lasting seven minutes.

At 10.30 p.m. his condition was unchanged, except that his temperature was now normal, his pulse 88, full and regular, and his respiration shallow and regular. The respiratory rate was 20. He was still sweating profusely.

At 11.30 p.m. he had another convulsion, lasting three minutes.

At 2.45 a.m. his breathing was stertorous, his face very flushed, and he was still sweating. His temperature was now 108.4° F., his pulse 160 and feeble, but his nervous signs were unchanged.

At 8.30 a.m. he appeared to be *in extremis*. His breathing was quick (40 per minute) and irregular, his pulse 152 per minute and feeble, his temperature 105°, and he was markedly cyanosed. He died a few minutes afterwards.

A post mortem examination was made 25 hours after death. Putrefactive changes were already present in the lower abdomen. There was marked lividity about the head, arms and thorax. The brain showed no abnormality, and, on sectioning after hardening in formalin, no hæmorrhage was found. The pleuræ each contained about 10 ounces of blood-stained fluid, and both lungs showed great venous congestion. The pericardium contained two ounces of blood-stained fluid, and the right heart was dilated. The coronary arteries were healthy. The aorta showed no signs of disease, nor did the right radial artery. The stomach and intestines were dilated, and in the small intestine a bright, red colouration, about four feet from the ileo-caecal valve, over an area of about nine inches, was noted. The spleen showed venous congestion, as also did the kidneys, which otherwise appeared to be healthy. There were venous engorgement and fatty changes of the liver. The liver, stomach and intestines were examined for the presence of arsenic by Dr. H. G. Chapman, Honorary Pathological Chemist, who reported that no arsenic was found.

The cause of death, in the light of our present knowledge must be largely conjecture. The features of the case seem to be that cerebral signs and symptoms, with high temperature and profuse sweating, ending fatally within 24 hours occurred within half-an-hour of a second intravenous injection of an arseno-benzol drug into an apparently healthy adult, who had shown no untoward signs or symptoms after a previous injection.

That the fatal injection was the second suggests the probability that the phenomena are anaphylactic in nature. Such an assumption is supported by the fact that most unfavourable events after such injections, such as vasomotor disturbances, tingling sensations and temporary loss of consciousness for five to ten minutes occur after the second injection. It might be objected that anaphylaxis occurs only after protein injections. Such an objection cannot stand, however, if we accept the theory, which has considerable support, that an arseno-protein formed, probably in the liver, by the interaction of arseno-benzol and body protein is the actual therapeutic agent in this method of treatment.

I wish to express my thanks to Dr. E. H. Molesworth for permission to publish the records of this case.

Naval and Military.

The announcement has been made in the public press of the appointment of Colonel Cuscaden to the office of Permanent Whole-time Principal Medical Officer for the No. 3 Military District. The appointment has, however, not yet been announced in the Government *Gazette*. It will be remembered that Colonel Cuscaden has acted as Principal Medical Officer under the old conditions up to the present. The selection is a popular one.

The appointment of Colonel E. S. Stokes to the position of Principal Medical Officer for the No. 2 Military District was announced on November 30, 1915. Colonel Stokes has had extensive experience at the front, and has all the qualifications required for this important position.

The following letter has been received from the Deputy Director-General of Medical Services by the Principal Medical Officers of the various Military Districts:—

> It is proposed that Junior Medical Men applying for service abroad and not yet allotted to A.I.F. may be taken on in the A.I.F. and allotted to Civil Public Hospitals until they can be allotted to Units, provided that the Civil Hospital defrays the necessary pay, such allotment not to exceed the period of three months.
>
> This would save the Department expense and provide a reserve of A.I.F. Medical Officers who can be allotted as required for service. The Department could allot surplus men from one District to another for this service if required.
>
> It would be distinctly understood that men so transferred (temporarily) would be available at any time for A.I.F. work, and, whilst they would be replaced where possible, there could be no guarantee of such replacement.

Please communicate with British Medical Association and Civil Hospitals in your District *re* scheme, and report their views.

The following communication from the Directors-General of the Army Medical Service in France to the War Emergency Committee is so significant that we do not hesitate to reproduce it, notwithstanding the fact that it has been published in the *British Medical Journal* of October 9, 1915, and in the *Lancet* of October 16, 1915:—

We have observed with some regret that in recent *Gazettes* there have appeared the names of many medical men who have resigned their temporary commissions in the Royal Army Medical Corps. It is, of course, certain that a considerable proportion of these are recalled to Great Britain by personal and public claims on their services which they could not neglect, but at the same time we think that the claims of the army and of the nation are perhaps scarcely sufficiently considered by those at home, at whose call some at least of the officers have resigned their commissions. It may well be that, after the past few months of comparative quiet, medical men at home may hear from those who have been serving in France that some of them have found the work monotonous. And, while this no doubt is perfectly true, we would ask those who contemplate applying for commissions to consider the matter in another light.

Every one recognizes more or less that in order to ensure a successful issue to the war our army and navy must show the greatest patience and tenacity of purpose, and that without these mere bravery in battle is of but little value.

The same is true of the work of the medical profession. A similar tenacity of purpose and an equal patience are required, in addition to the skill and energy which every battle calls forth. The excitement of great and moving events is necessarily transient, and men must be prepared to do their duty steadfastly during long periods of dulness. Yet it is during these dull periods that the services of the army surgeon are really of the greatest value, though they may be dull and uneventful to himself, and it is during these intervals that the regimental medical officer gets into that close touch with officers and men alike which gains their confidence and gives him an influence without which mere professional knowledge is not of much avail.

The medical officers who are attached to regiments, batteries, motor convoys, etc., are each responsible for the health and well-being of many hundreds of men, and it is not too much to say that the strength of our army has been largely maintained during the past year by the work of these officers.

It is no doubt monotonous to be constantly watchful of the cleanliness of billets, to supervise food, to prevent parasitic infections, to treat sore feet, diarrhœa, or muscular rheumatism, and to do the thousand and one things which help to keep the soldier an efficient fighting man. But the medical officer who does these things is doing at least as much for his country as the man who performs operations or treats enteric fever.

The staff of the field ambulances have also to deal with many minor ailments of but little interest, but every division is dependent on them for the rapid return to the regiments of those whose illnesses are too slight to justify a return to England. Rest stations and convalescent depôts in charge of the field ambulances are also dull, but the good they do in maintaining the health of the troops is almost incalculable, and we would urge on all medical men who wish to serve their country that the performance of all such duties is essential for success in the present war.

The work of the casualty clearing stations and of the general hospitals at the base is characterized by periods of comparative idleness and of excessive work, but it must be evident to all that, unless the staff was too large for periods when there is but little fighting, it would be far too small for dealing with the crowds of wounded which follow in the wake of every great battle. And, hard though it may be to remain comparatively idle during the months of comparative peace, it must be remembered that the lot of the medical officer is in this respect identical with the lot of the cavalry soldier or the artilleryman.

The country needs the service of men who are prepared not merely to brave the dangers of a battlefield, but also to endure with patience and cheerfulness the dull routine of daily work and waiting. The coming winter may well prove a severe trial to those whose duty it is to fight, and there can be no doubt that if our army is to be kept healthy and ready for action, the medical profession must supply it with men who will show the same determination and patience in their own field of work as have distinguished the British soldier throughout this campaign.

G. H. MAKINS,
ANTHONY A. BOWLBY,
JOHN ROSE BRADFORD,
F. F. BURGHARD,
W. P. HERRINGHAM,
CUTHBERT WALLACE.

ALLEGED MALINGERING.

An enquiry into the circumstances connected with the treatment of a gunner named William Walter Perry, a returned soldier, has recently been concluded, and the Magistrate, Mr. P. Cohen, who was commissioned to investigate the case, has now issued his report. It will be remembered that on September 9 Mr. W. Maloney made a speech in the House of Representatives, dealing with the alleged maltreatment of Gunner Perry at the Base Hospital. Mr. Maloney asserted that Perry had been kicked by a horse in Egypt, and that his spine had been injured. He was attended by Dr. Springthorpe and Dr. Bird, and subsequently sent back to Melbourne. On arriving in Victoria, he was admitted to the Base Hospital, where "certain doctors," thinking that he was malingering, tortured him with electricity and then had him court-martialled. Mr. Maloney proceeded by stating that, as the doctor's attitude toward the man did not improve, Perry managed to get away from the hospital. The man appealed to Mr. Maloney for protection ,and the latter secured a promise from the Minister that the man would not be arrested. He was, however, dragged away from home at 11 o'clock at night, although the Minister contended that he was merely taken before the Medical Board.

A large number of military, medical and other witnesses gave evidence before the Magistrate, and various opinions were expressed in regard to the condition of the man. The medical witnesses were divided into three groups; one group held the opinion that Perry was a mere malingerer; the second group diagnosed the condition as hysteria; while the third group spoke of neurasthenia as the cause of the symptoms. It is extremely unfortunate that in cases of this kind no attempt is made by the medical witnesses to confer, in order that the facts of the case may be ascertained and a correct interpretation of them agreed upon. There should be no difficulty in differentiating hysteria from neurasthenia. No doubt a clever malingerer may succeed in deceiving medical men for a time, but careful observation should suffice to enable the physician to distinguish a case of shamming from one of either functional or organic nervous defect.

Mr. P. Cohen examined the charges separately. In the first place, he dealt with the suggestion that Gunner Perry was incorrectly charged with malingering. The Magistrate found that this charge had not been proved. In other words, he supported Dr. Meade in his assumption that the man was malingering. He pointed out that Perry had made it apparent to everybody in the hospital that the effect of his disability was that he was unable to walk properly. He therefore attempted to decide whether the man was in fact unable to walk properly. "Knowing the facts, and in view of his own experiments and examination, I think Dr. Meade was quite justified in coming to the conclusion that Perry was pretending that he could not walk properly, and that he was malingering." Moreover, Mr. Cohen arrived at the conclusion that Perry did not

have an honest belief that he was incapable of walking properly. He passed over the suggestion that Perry was not "in his right mind," and concluded this part of his enquiry by stating that there were many instances spoken of during the enquiry which were incompatible with the contention that Perry had an honest belief in his disability.

The second charge was one of cruelty on the part of Dr. Meade. Again the Magistrate found that the charge was not proven. The acts of cruelty cited were three. It was said that Dr. Meade kicked Perry when trying to induce him to walk; that he applied the battery to his face so as to give him pain; and, thirdly, that he caused him to be court-martialled. Mr. Cohen dismissed the first suggestion, after expressing the opinion that there was not much in the incident at all. The findings in regard to the second allegation are of importance to medical men generally, since the application of faradic currents in the treatment of functional nervous affections and for the purpose of confirming a suspected diagnosis of malingering is so common that, were this held to constitute legal cruelty, medical practitioners would be in frequent danger of being subjected to charges of this kind. Mr. Cohen recognized that while the application of the electric current to the face was calculated to cause pain, and might be regarded as extremely cruel, the matter was quite different since Dr. Meade had carried this out with a definite object. Drs. Stanley Boyd, Wilkinson, Sewell and Mackeddie had expressed the opinion that if Dr. Meade were satisfied that Perry was malingering, he would be justified in using the battery for the purpose of unmasking him. There was no foundation for the suggestion that Dr. Meade had used this means as a punishment because he had quarrelled with Perry. The Magistrate came to the conclusion that Dr. Meade was quite justified in applying the battery. In regard to the alleged cruelty in having the man court-martialled, it was shown that Perry was court-martialled for malingering. Dr. Meade reported the circumstances to the Principal Medical Officer and the Commandant ordered the court-martial. The charge of malingering was prepared and sent to Dr. Meade for signature, as he was in charge of the hospital. In conclusion, Mr. Cohen found that the evidence of the nurses and patients could be relied on, and that Dr. Meade had not exhibited cruelty to Perry.

The third charge was that, notwithstanding the promise of the Minister for Defence that he would not be arrested, an ambulance was sent to remove Perry from his home to the Base Hospital on September 8, 1915. The findings in regard to this charge were that there was no intention to force Perry to return to the hospital unless he was willing to go.

The fourth and last charge deals with the non-payment of money due to Perry's wife. Mr. Cohen was of opinion that the explanation of the Department was quite satisfactory.

Mr. Cohen dealt briefly with the evidence given of Perry's statements concerning the part he alleged that he had taken in the South African and China campaigns. He refrained from commenting on "the extraordinary allegations of misrepresentations and fraud made against Perry by a number of the witnesses," because Perry was not able to offer an explanation in his defence. He found that Perry was obviously ill during the enquiry. This illness was probably due to the nervous strain and worry caused by the enquiry.

It is therefore clear that the statements made by Mr. Maloney have not been supported, and that the charges made against Dr. Meade have broken down under close investigation. Anyone with any knowledge of medical matters, and especially of diseases of the nervous system, must have come to the conclusion during the course of the enquiry that Dr. Meade's attitude throughout was sound and strictly in accordance with the physical condition of the patient. We offer our congratulations to Dr. Meade on the result of the enquiry.

THE HOBART GENERAL HOSPITAL.

It was announced at a meeting of the Hobart General Hospital Board, held on October 8, 1915, that the sum of £2,000 had been left to a hospital in Tasmania for consumptive patients, or in aid of erecting an addition to the existing General Hospital at Hobart or Launceston, by a wealthy lady. The will was dated 1899, when the conditions were different to what they were at present. The trustees therefore recognized that it would not be advantageous to comply with the letter of the will, but that it would be better to give the amount of the legacy to the Hobart General Hospital for the purpose of erecting a sanatorium on the châlet system on high ground near Hobart or New Town. We understand that the Board will take an early opportunity of considering the offer, and that the members of the Medical Committee will be consulted before any final decision will be arrived at. The sum of £2,000 is sufficient for the erection of huts in which consumptives can be treated, but it is doubtful whether this comfortless method of dealing with sick people is a good one. The cost of well-equipped, modern sanatoria is considerable, but it would seem as if the additional expenditure were regarded by the majority of authorities as an economy.

Public Health.

INFECTIVE DISEASES IN QUEENSLAND.

The following notifications have been received by the Department of Public Health, Queensland, during the week ending November 20, 1915:—

Disease.	No. of Cases.
Diphtheria	38
Enteric Fever	46
Scarlet Fever	9
Varicella	7
Pulmonary Tuberculosis	13
Erysipelas	4
Cerebro-Spinal Meningitis	6
Total	123

THE HEALTH OF NEW SOUTH WALES.

The following notifications have been received by the Department of Public Health, New South Wales, during the fortnight ending November 22, 1915:—

	Metropolitan Combined Districts.		Hunter River Combined Districts.		Remainder of State.		Total.	
	Cs.	Dths.	Cs.	Dths.	Cs.	Dths.	Cs.	Dths.
Enteric Fever	20	3	5	1	24	1	49	5
Scarlet Fever	200	2	44	—	219	3	463	5
Diphtheria	101	5	9	1	116	2	226	8
Infantile Paralysis	3	1	—	—	1	—	4	1
Meningitis	4	3	—	—	4	1	8	4

SMALL-POX IN NEW SOUTH WALES.

The following cases of small-pox have been reported to the Department of Public Health, New South Wales, during the week ending November 28, 1915:—

	Cases.
Country—	
Newcastle and surrounding district	8

THE HEALTH OF VICTORIA.

The following notifications have been received by the Department of Public Health, Victoria, during the week ending November 25, 1915:—

	Metropolitan.		Rest of State.		Total.	
	Cs.	Dths.	Cs.	Dths.	Cs.	Dths.
Diphtheria	51	1	27	0	78	1
Scarlatina	23	0	5	0	28	0
Enteric Fever	2	0	3	0	5	0
Pulmonary Tuberculosis	21	6	9	2	30	8

The following is the return of cases of epidemic cerebro-spinal meningitis reported to the Board during the week ending November 25, 1915:—

	Metropolitan Area. Cases.	Rural Districts. Cases.	Totals. Cases.
Military	—	—	3
Civil	13	5	18

The Medical Journal of Australia.

SATURDAY, DECEMBER 4, 1915.

The Cancer Problem.

It has often been said that the larger the literature on a subject, the greater is our ignorance of it. There is never any dearth of theories when facts are sparce and men do not hesitate to draw far-reaching deductions on imaginary hypotheses and to build up an insecure structure on these deductions; only to see the whole come down with a crash, as soon as the fundamental assumptions are subjected to criticism. The problem of cancer is one around which mystery is wrapped, and of what lies hidden beneath the opaque veil no one has any conception. Consequently, the number of guesses that have been made cannot be counted. Various beliefs connected with cancer have been handed down from generation to generation, and for a long time have not been questioned. It used to be held that cancer was hereditary, that it occurred in groups of cases, and so forth and so on. Of late, some difference of opinion has been expressed as to whether this terrible disease is increasing. At first sight, it would seem as if no difficulty could arise in regard to the determination of the frequency of a disease which is fatal in the vast majority of cases. But it must be remembered that the question of the correctness of diagnosis must be considered, and if it can be shown that the diagnosis cannot be trusted, the recorded increase may be illusory and may exist only in the statistician's tables. This matter has been closely and skilfully investigated by numerous capable workers, including Bashford, of the Imperial Cancer Research Fund, Alexis Thomson, and many others. An excellent discussion of the situation has been given by Professor J. M. Beattie in a lecture delivered before a meeting of the North-Western Branch of the Society of Medical Officers of Health.[1] He points out that, according to the returns of the statisticians in various countries, and also of the life assurance companies, the increase of cancer would appear to be considerable. In 1860 the female cancer mortality was given at 500 per million, while in 1910 it was 1070. He then proceeds to examine the reliability of clinical diagnosis generally. Oertel has tested this in one of the largest hospitals in New York. During a single year 3170 patients died in this institution. A *post mortem* examination was carried out in 482 cases; the causes of death in early infancy were excluded. He finds that in 87 out of 390 cases was the diagnosis confirmed; in 116 the clinical diagnosis was partly correct; in 54 the more important lesions were undetected, and in 109 the diagnosis was wrong. In 24 cases no clinical diagnosis was made. Professor Beattie is of opinion that even when due weight is attached to all the fallacies in diagnosis and to the erroneous method of collecting statistics, there is still sufficient evidence to support the contention that there is an increase in the number of cases of cancer. From the presentation of the available figures dealt with by the workers of the Imperial Cancer Research Fund, it would seem doubtful whether this increase is real, and for the present it would be wiser to regard the matter as not proven, even though some slight increase is not improbable. This consideration points to the necessity of greater attention being paid to diagnosis and to control by *post mortem* checking. More than that, no tumour should be labelled cancer until the histological characters have been studied by a competent microscopist.

If the information as to the frequency of the disease cannot be relied on, what wonder that its ætiology is obscure? Professor Beattie deals with the myth of cancer houses, with the alleged infectiousness of the disease, and with the question of a parasitic origin. Rous' experiments are certainly suggestive, but they are by no means conclusive. It may be argued that the production of a sarcomatous growth in chickens after the inoculation of a filtrate of sarcoma cells need not be due to the action of a filterable virus, but may be explained on the ground of chemical action. It is known that certain chemical and physical agents favour the development of malignant growths. We therefore agree with Professor Beattie when he states that patience and continued work are needed before the cancer problem

[1] *Public Health*, September, 1915.

can be solved. In the meantime, we must be sceptic and require convincing proof before we accept any statement connected with this uncanny and terrible disease.

DRUGS AND SPECIALTIES.

The problem of the supply of drugs and of the progress in pharmacology and therapeutics is exercising the minds of men at the present time. This problem is, or perhaps it would be more correct to say, these problems are complicated by numerous side issues, not the least important of which are the interests of various sections of the community. The Commonwealth Government has determined to ban all enemy trade marks. The registered trade mark or name of any drug or similar preparation will disappear after the public has become familiar with the substituted name. This matter was reported in *The Medical Journal of Australia*, of November 27, 1915, p. 515. It is apparent, however, that the disposal of the terms does not solve what is in fact a matter of real moment to the community. In the past, a large number of chemical substances employed in medicine were of enemy origin and manufacture. It may be that but few drugs are truly specific, and act curatively in definite diseases. This fact does not signifiy that the remaining drugs are useless, or that the treatment of disease can be carried out efficaciously without them. It may therefore be advantageous to consider how new drugs are produced, and what means exist to guarantee a continued supply, notwithstanding the exclusion of the German and Austrian preparations.

In considering the question of the future progress of pharmacology, three main forms of remedies must be recognized. The first consists of the biological products, and includes sera containing antibodies, organ extracts, and the like. In regard to these preparations, no difficulty need be anticipated, since the products arise as a result of systematic research in bacteriological and biological laboratories, and are readily prepared in large quantities as soon as their therapeutic value is assured. The second form of remedies need not occupy our attention for long. They are the botanical remedies. But few important additions have been made to the list of useful medicinal plants within the last two or three decades. Should important therapeutic action of a plant or herb be discovered in the future, no obstacle will be met with in regard to the supply and preparation of the most suitable form for medication.

The chief difficulty will be experienced in connexion with synthetic substances. In the past, the pharmacologist, the chemist and the clinician have co-operated in the work of producing new synthetic remedies. The study of the relation between chemical constitution and therapeutic action and the sciences of chemio-therapy and vital staining have led to distinct advances in the past, and will certainly lead to still more valuable discoveries in the future. Within the British Empire, the part played by medical men in these studies differs markedly from that played by the chemist, because our conceptions of the dignity of the medical profession precludes practitioners from participating in commercial profits accruing from the sale of patented or otherwise protected preparations. Even if this restriction should impose a slowing influence on progress, we would resist all attempts to alter it. An honourable man is bound to disclose to the rest of the profession all the details of a discovery made by him, and he is not free to secure for himself profits from a discovery. The chemist need not have any scruples of this kind, and when his work results in the discovery of a valuable substance, he patents the method of preparation, and pockets all the profit derived from its sale. The association between the pharmacologist and the chemist is therefore liable to be dangerous to the former or little tempting to the latter. On the other hand, their association is essential if we wish to take our part in the advancement in this branch of medicine.

Definite steps must be taken in regard to preparations which have been or which will be discovered and patented in Germany. This matter has been discussed in Paris, and Dr. Paul Gallois has made certain suggestions, which are interesting, although they are not applicable in this country. He has come to the conclusion that it is necessary to protect France, not only against German militarism, but also against German industry. He considers that

among the most dangerous of the German industries for the French is the chemical industry. His proposals are that a really new medicament may be patented; that the patent may protect the process of preparation rather than the substance itself; that the name of a medicament may not be used as a trade mark; that mixtures of drugs already known may only be sold if the formula is disclosed on the label, and, lastly, he would admit the right of any one to manufacture medicaments wholesale, but would restrict the retail sale to pharmacists who are registered and therefore subjected to control. Since the medical profession in the British Empire cannot approve of the patenting of a medicament, the chief difficulty in this connexion would disappear if the law were amended so that no Australian patents were granted for drugs at all. This would give Australian manufacturing chemists the opportunity of producing any drug which might be required for the treatment of disease, and, incidentally, it would stimulate enterprise. Necessity is the mother of invention, and the present moment is undoubtedly extraordinarily favourable for the development of a strong chemical industry within the Commonwealth.

HEALTH RESORTS.

When the Public Health Amendment Act was under consideration in the New South Wales Parliament, great stress was laid on the necessity of bringing the proprietors of country hotels and similar establishments under the control of the sanitary authority. Tales were told of houses in which the most elementary principles of hygiene were ignored. The Advisory Board, which had been appointed to deal with the question of tuberculosis, had recommended that licenses should be granted only when a certificate from the sanitary authority could be produced. The attack on the country hotels was extremely severe, but not unjustly so. Dr. H. Stoker and others have called attention in the columns of this journal on various occasions to the deplorable condition of many public and private houses where guests may find shelter and possibly an attack of enteric fever. The debate in February resulted in the passing of the Act, but as far as we have been able to ascertain, the provisions in regard to the proper sanitation in country areas have not yet been enforced, at all events in so far as the majority of the districts are concerned. Consequently, the fortnightly returns of the Board of Health of New South Wales do not show any marked reduction in the incidence of enteric fever as compared with the same period of previous years. It is desirable that practitioners should be cautious when advising patients to spend a time at the beautiful health resorts in the Blue Mountains and in the West. Fortunately for the community throughout the civilized world, the commercial instincts of hotel proprietors are a safeguard in the more frequented spas. The larger the clientèle of a sanatorium, hydropathic institution or hotel, the more certainly will the sanitary arrangements be found to be good. The popularity of the "Mountains" has resulted in the erection of a number of comfortable hotels and institutions; and the continuation of this popularity has ensured a progressive policy on the part of the proprietors. It is true that there are still some hotels and boarding-houses in the health resorts of the Blue Mountains in which the Goddess Hygiea has no place. On the other hand, hotels like the famous Casino at Medlow Bath, and the Imperial at Mount Victoria, leave nothing to be desired from the point of view of safety and comfort. It has been shown that the incidence of enteric fever can be reduced without difficulty under almost unfavourable conditions. We are inclined to the belief that the reason why so few of our soldiers at Liverpool Camp and at Broadmeadows have contracted this disease is to be sought rather in the care exercised in the protection and disposal of the excreta than in inoculation. There is evidence from the Board of Health of New South Wales to show that the proportion of the men who received three injections of vaccine was not large enough to effect this satisfactory result. We hope that the provisions of the Amending Act will be enforced rigidly in every district in the State, and that a responsible medical officer will be appointed for each group of districts, to see that the preventive measures are adopted uniformly. Efficient sanitation, supplementing prophylactic inoculation, would result in the stamping out of enteric fever, not only in health resorts, but in every country district.

THE ALVARENGA PRIZE.

The next award of the Alvarenga Prize for the best essay upon any subject in medicine will be made on July 14, 1916. This prize is valued at 250 dollars, which is the income of a bequest of the late Señor Alvarenga to the College of Physicians, of Philadelphia. The essays must be typewritten, and if written in a language other than the English language, must be accompanied by an English translation. No signature may be attached, but the essay should be plainly marked with a motto. A sealed envelope, having on its outside the same motto and containing the name and address of the author, must be sent with the typescript. The essays must be received by the Secretary of the College of Physicians, 19 South 22nd Street, Philadelphia, Pa., U.S.A., on or before May 1, 1916.

It is a condition of competition that the successful essay, or a copy of it, shall remain in the possession of the College; other essays will be returned upon application within three months after the award.

The Alvarenga prize for 1915 has been awarded to Dr. J. E. Sweet, of Philadelphia, for his essay, entitled "The Surgery of the Pancreas." The prize was awarded to Dr. H. B. Sheffield, of New York, in 1914.

The shortage of medical practitioners has made itself felt in many districts, and has caused difficulties in connexion with the staffing of several hospitals. The attention of members is directed to an advertisement appearing on another page in this issue for an Assistant Resident Medical Officer at the Broken Hill and District Hospital, where this difficulty is acute.

Abstracts from Current Medical Literature.

THERAPEUTICS.

(195) Treatment of Insolation.

G. C. Hanson records three cases of insolation treated by the inhalation of chloroform (*Journ. Amer. Med. Association*, October 6, 1915). The first case is that of a man, aged 37, who was found in an unconscious state, suffering from insolation. After two hours of futile effort to revive the patient, chloroform was administered lightly by inhalation for ten minutes. The symptoms improved rapidly. The second case is that of a robust boy, aged four years, who had been unconscious for three hours. The temperature was 107° F., the pulse-rate above 200 beats per minute, with stertorous respiration, stupor and complete relaxation. The patient was stripped of clothes and given chloroform by inhalation. The inhalation was continued lightly for thirty minutes. The pulse had slowed to 160 beats a minute in twenty minutes. After half an hour the temperature was 105° F., the pulse 145 and the respiration improved. Muscular tone was evident, and, on stopping the anæsthetic, signs of returning consciousness were manifested. Recovery was uneventful. The third case is that of a man, aged 25, who was overcome by heat while at work in a hayfield in the afternoon. Three hours later the patient was observed with profound stupor, complete muscular relaxation, with a pulse-rate of 185 and a temperature of 106.6° F. The clothes were removed and chloroform administered. The patient commenced to recover in half an hour. No other treatment was used until recovery had started.

(196) Quinine and Urea Injections in Hyperthyroidism.

L. F. Watson has continued injections of quinine and urea in the treatment of fifty cases of goitre (*Journ. Amer. Med. Association*, September 25, 1915). He has employed over 200 injections without unpleasant effects. He recommends the method to relieve the symptoms of hyperthyroidism, not to remove the goitre. The injections are made into the thyroid tissue. It is advantageous to give each succeeding injections into a different part of the gland. In this way, the whole gland is infiltrated in time. He uses from 1 to 4 c.cm. of a 50% solution of quinine and urea, and gives an injection every third day until the gland has been completely infiltrated. Eight to fifteen injections are needed to produce a marked improvement in the general symptoms, with the disappearance of the bruit over the superior thyroid arteries. Care must be taken not to inject too deeply or to inject the solution into the trachea. Sixteen patients with recent toxic goitre have been free from symptoms of hyperthyroidism for one year. In four the goitre has disappeared, in eight the goitre has decreased in size, in two the tumour has enlarged slightly and in two there is no perceptible alteration in the size of the tumour. Two patients with severe toxic goitre were free from symptoms of hyperthyroidism eighteen months after the last injection. Ten patients who were much emaciated have increased in weight, and none have lost a pound weight since the injections ceased over four months ago. All these cases have not been treated for one year. Cases treated since June, 1914, will be the subject of a future report.

(197) Transfusion of Citrated Blood.

Irving Simons (*Journ. Amer. Med. Association*, October 16, 1915) condemns all methods of transfusion dependent on the addition of any substance such as sodium citrate to the blood. He is well aware that the indirect mode of transfusion seems to be ideal. It involves the use of a cheap, easily sterilized fluid. The blood may be kept indefinitely, and can be transported, the amount removed from the donor and transfused can be accurately measured, and the process of transfusion is simplified to a mode of infusion. He records three cases which illustrate the objections to the use of the method. In the first case, a man with secondary anæmia, consequent to hæmorrhage from the bowels of five days' duration, received 375 c.cm. citrated blood. During the process of infusion he became faint. One hour later he collapsed, and did not recover for two hours. He voided claret coloured urine with relief. Later he was transfused by the direct method of Crile without any untoward symptoms. In the second case, a woman who had been bleeding from uterine fibroids received 500 c.cm. citrated blood, taken from her husband. One hour later shock of moderate degree supervened. It was easily combated, and the temperature rose to 102.6° F. The third case was that of a woman admitted to hospital with symptoms of sudden intra-abdominal hæmorrhage. Four days later she had another hæmorrhage, which was treated by direct transfusion after Crile's method. The transfusion was successful, and the urine subsequently passed not coloured red. Ten days later, as the hæmoglobin percentage was not increasing, the patient was treated with citrated blood. When 100 c.cm. had been allowed to flow in, the patient collapsed. She soon recovered, and another 100 c.cm. were administered, when the patient collapsed completely. She was cyanosed, with widely dilated pupils. The heart sounds and pulse became imperceptible. The transfusion was stopped and stimulation continued for six hours, but the patient died.

(198) Vaccine Treatment of Hodgkin's Disease.

A. R. Hatcher and W. G. Lemmon (*Journ. Amer. Med. Association*, October 16, 1915) have treated a case of acute Hodgkin's disease with an autogenous vaccine. The patient, a retired farmer, aged 63, who had not suffered from illness since childhood, had "a breaking out on the face." A few days later the glands at the angle of the jaw commenced to swell. A fortnight afterwards the gland in the axillæ and groins were noticeable. The swellings were at no time painful, tender or red. He became rapidly weak and emaciated with extreme nervousness. Five months later the tumours consisted of enlarged, painless, non-adherent, discrete lymph nodes. The mucous membranes were pale. Physical examination was otherwise negative. The red corpuscles numbered 3,200,000 per c.mm., the hæmoglobin from 55% to 60%, the white cells 7,200, of which 59% were polymorphs and 41% mononuclear. A gland was removed from the neck and an autogenous vaccine prepared from the organisms, resembling those described by Buntine and Yates, present in the gland. The vaccine was administered twice a week by subcutaneous injection. There were no severe reactions. The growths were treated by Röntgen rays every fifth day. After six weeks, amelioration in the symptoms was apparent. The improvement continued for three months, when the patient had an attack of acute suppurative appendicitis. He recovered after operation. During the attack and recovery, the glands rapidly decreased in size. The improvement has continued, and the patient seems quite well.

(199) Cure of Amœbic Dysentery.

A. J. Chalmers and R. G. Archibald discuss the indications of cure in cases of amœbic dysentery (*Journ. of Trop. Medicine and Hygiene*, August, 1915). The first step towards the cure of the dysenteries is the recognition that the clinical signs and symptoms can be caused by many different agents. Certain amœbæ are recognized as important causal agents. In Khartoum, *Löschia tetragena* is found living and moving in the fæces of these cases. The first step towards cure is the detection of the amœba in the fæces of the patient. In many cases in which the latent or cryptic form of the disease is present, the symptoms may not suggest the presence of amœbæ in the intestines. By cure they understand that the given infective agent has ceased to live in the patient's body. Their experience goes to show that, with the treatment with intramuscular or intravenous injections of emetine, the amœbæ gradually disappear from the patient's motions. The amœbæ reappear after a longer or shorter period if the treatment be stopped too soon. They find that differential leucocytic counts are most useful in prognosis. At the commencement of treatment, a count is made, and if the mononuclear leucocytes are more numerous than usual, a purge is administered and the motions examined for amœbæ. If they are found, treatment with emetine is employed. After a few weeks, the treatment is stopped. If the mononuclear count remains high, treatment

is resumed after two weeks. The process is repeated until the leucocytic count returns to normal after cessation of the treatment.

(200) Immunized Milk in the Treatment of Enteric Fever.

J. Rosenberg advocates the use of milk from goats and cows in the prophylaxis and treatment of typhoid fever (*Med. Record*, October 23, 1915). He has shown that the milk of goats and cows, immunized with dead cultures of typhoid bacilli, contains specific antibodies, precipitins and agglutinins for the bacillus of Eberth. He believes that immunized milk will provide protection against typhoid infection. He has commenced a series of clinical tests, in which this milk replaces ordinary milk in the treatment of enteric fever. Park has shown that the feeding of immunized milk to adult cows leads to the production of antibodies in their blood. The main objection to this method of treatment, that the antibodies are not absorbed from the intestinal canal, thus disappears. The author is of opinion that an easy, safe method of passive immunization is provided by drinking the milk from immunized cows.

UROLOGY.

(201) Errors in the Diagnosis of Renal and Ureteral Calculus.

H. Cabot (*Surg., Gynaec. and Obstetrics*, October, 1915) publishes a review of 153 cases of stone in the kidney and ureter occurring at the Massachusetts General Hospital. He found that abdominal operations had been performed in 26 cases without any relief of symptoms being obtained. This was due to the fact that the calculus was overlooked in 10 cases without benefit. The other unsuccessful operations included exploratory laparectomy (8), nephropexy (4), oöphoro-salpingectomy (1), operation on the gall bladder (1), an attempt to free adhesions which did not exist (1), renal decapsulation (1), and, "as a crowning iniquity," suprapubic cystotomy (1) on a normal bladder for a stone which was situated "some two feet" away. These errors all occurred in the hands of reasonably competent surgeons. The most prominent symptoms in the majority of the cases was pain in the right lower quadrant of the abdomen, abdominal pain without colic, or backache. In 21 of the 150 cases in the series in which the urine was carefully examined on more than one occasion it was normal. In 127 cases satisfactory radiograms were obtained. In eight no abnormal condition was discovered. This was equal to a failure in 6% of the cases. The author, however, was of opinion that the real percentage of failures was considerably higher. In many cases the radiograms were taken over a period of months, and when a positive result was obtained the negative findings were entirely lost sight of. He estimates that 15 is probably the correct percentage of failures, even in the most expert hands. A further group of incorrect diagnosis belonged to the physician rather than to the surgeon. In this group the condition was confused with gastric ulcer, lumbago, sacro-iliac strain, acute and chronic Bright's disease, chronic cystitis and neurasthenia. Two so-called neurasthenics, with abdominal pain, negative physical examination and normal urine, were cured by the removal of ureteral calculi.

(202) The Mechanism of Micturition.

A. B. Cecil (*Journ. Amer. Med. Assoc.*, October 23, 1915) has subjected the mechanism of micturition, from the point of view of the urologist, to analysis, and discusses the physiological value of the internal and external vesical sphincters. The importance of preserving one or other of the sphincters during prostatectomy, whether suprapubic or perineal, is insisted upon. The risk of incontinence of urine following an external urethrotomy on a patient, who has had a previous prostatectomy, is mentioned. In dealing with median perineal prostatectomy, the author states that absolutely no regard is usually paid to the physiology of micturition. He considers that it is not remarkable that incontinence is a frequent sequelæ of this operation. It was only by chance that the internal sphincter muscle might regain its function after this operation, or that the external sphincter might heal, and its function be restored. He comes to the following conclusions, *inter alia*: (1) The desire to micturate arises from stimulation of the sensory nerves of the bladder, and not from stimulation of the sensory nerves of the posterior urethra. (2) The internal sphincter normally maintains the closure of the bladder. (3) Although the internal sphincter is composed of unstriped muscular fibres, it is to all purposes under volitional control. (4) The external sphincter is capable of maintaining the closure of the bladder, and does not require to be educated to perform its function. (5) Either the external or the internal sphincter can, if necessary, be destroyed without interfering with the function of retention of urine, provided that the remaining muscle is in a normal condition. (6) Median perineal prostatectomy is liable to result in incontinence of urine, since the external sphincter is divided, and the internal sphincter may be rendered useless by the prostatic growth.

(203) Treatment of Tumour of the Bladder.

J. A. Gardner has collected the records of 1702 cases of vesical tumour treated by various American urologists during the past 15 years, including those cases which have been dealt with by special methods of treatment (*American Surgery*, 1915, LXII.). The results obtained in these cases prove that treatment by means of high frequency cystoscopical currents is superior to all others for papillomata, and that nothing short of wide resection of the bladder or sub-total cystectomy is of the smallest use in malignant growths. Recurrence was noted in 88% of the cases of malignant tumour when suprapubic cystotomy and excision of the growth were performed. When partial cystectomy was carried out, recurrence was noted in only 43% of the cases. The primary mortality of the latter operation was lower than that of the former. In papilloma recurrence followed excision in 35.5%, whereas with the high frequency treatment, it was only 13.1% of the cases. On the basis of his investigation, he comes to the following conclusions: (*i.*) The transperitoneal method, as practised in the Mayo Clinic, or the sub-total cystectomy of Squier, with wide resection of the bladder wall, offers the best results in carcinoma. These methods give the operator the opportunity of looking for enlarged glands or metastases, and, when necessary, the ureters can be transplanted without difficulty. (*ii.*) Cystotomy, with excision and the application of the actual cautery, should only be used in terminal cases, and as a palliative method to relieve pain and hæmorrhage. (*iii.*) When the growth involves both ureters, Watson's operation of total cystectomy, with a preliminary operation, such as bilateral nephrostomy and ureteral ligature, yields the best results. (*ir.*) In the treatment of papilloma, high frequency current applied through the cystoscope has given better results than all other methods during the short time since the introduction of this form of treatment.

(204) High Frequency Currents for Vesical Papillomata.

E. Bear deals with the different effects of monopolar and bipolar currents in the treatment of papilloma of the bladder (*American Surgery*, 1915, LXI.). He favours the former. He emphasizes the importance of obtaining a specimen for microscopical examination, as all malignant tumours should be excluded from this method of treatment. At the first cystoscopy, unless the growth is obviously carcinomatous, he applies the high frequency currents. At the second cystoscopy, unless there is good response to the previous treatment in the form of extensive destruction of the tumour mass, he excises several pieces through the cystoscope. All cases that are not definitely benign, and all malignant cases, are treated by wide resection of the bladder. The results obtained from high frequency cauterization of papillomata are satisfactory. Malignant papillomata can be recognized by a careful consideration of the evidence obtained by cystoscopy, by the response to cauterization, by palpation, and by the microscopical examination of excised and voided specimens. He prefers Oudin's monopolar current, since its effects are more readily controlled to d'Arsonval's bipolar current. He states that the size of a papilloma need not be regarded as a contra-indication to the use of this treatment. The chief contra-indications include inaccessibility, severe traumatic hæmorrhage due to the introduction of the cystoscope, intolerance of the patient, and malignancy of the growth.

Medical Matters in Parliament.

THE COMMONWEALTH OF AUSTRALIA.

(*Continued from page* 525.)

The Senate continued the consideration in Committee of the Quarantine Bill. Clause 8 proposed to amend clause 78A of the Principal Act, which provided that a quarantine officer might, subject to the regulations, order any vessel in any part of Australia, which vessel is, in his opinion, in an insanitary condition favourable to the spread of communicable disease, to be taken to any prescribed place, and to be cleansed, fumigated, disinfected . . . Two subsections were added at the end of the section providing (1) that a quarantine officer could order a vessel to an appointed place, and that the master of the ship should cause the vessel to be so taken, and (2) that the Minister might order the vessel to be taken from any port to any other port in Australia, and that the master must take the vessel to that port.

Senator Lynch said that the sub-clauses provided for dual authority to remove a ship from one given place to another. He would like to know whether the wording was clear. A quarantine officer might order a vessel to another port which would be "another place." He presumed that it was not intended to give a quarantine officer power to order a vessel to another port.

Senator De Largie did not agree with Senator Lynch's contention. As there were so many small ports in Australia into which a vessel might enter under conditions of distress, he thought that quarantine officers should have very large power to order vessels to other ports without reference to the Minister. It might require a delay of some days to communicate with the Minister.

The Assistant Minister (Senator Russell) thought that there was some confusion in the minds of honourable Senators, if he might judge by the remarks that had been offered. The view of the Government was that, if it was necessary to take a ship from one port to another, the required instructions should emanate from the Minister alone. If it was necessary to move a vessel from a dock to midstream or to a similar extent, the order could be given by a quarantine officer.

Senator Turley thought the explanation of the Assistant Minister had shown that some amendment was necessary. Delay would arise from the time required to communicate with the Minister. The vessel might be held in port with no facilities to deal with infection on board, and the port might be a small one, with no quarantine arrangements whatever. The Assistant Minister pointed out that the clause only dealt with the disinfection of the vessel. The Principal Act dealt with the other matters in clause 42, which it was not proposed to amend.

Senator Keating said the cause was quite clear. It applied only to a vessel under a set of circumstances defined in section 78A of the Principal Act. When it was important that a vessel should be moved to a special place in a port the quarantine officer had power to give the order. If the vessel was to be removed to some other port the authority of the Minister was required.

Senator De Largie contended that it was desirable to give the quarantine officer powers to order the removal of a ship to another port.

The Assistant Minister informed Senator De Largie that section 42 of the Principal Act gave the quarantine officer the desired powers. After some discussion Senator De Largie was satisfied that no further amendment was needed.

Senator McDougall desired some information on the definition of a quarantine officer. All quarantine officers were not medical men. He knew of cases in Sydney where vessels had been shifted without the consent of the principal quarantine officer, and had had to be taken back.

The clause was agreed to.

Clause 9 was agreed to.

The title was agreed to.

The Bill was reported without amendment. The report was adopted.

The Bill was read a third time.

The Bill was received by the House of Representatives from the Senate on October 28, 1915, and read a first time.

Mr. Tudor moved in the House of Representatives, on November 4, 1915, that the Bill be read a second time. The Bill was to give effect to amendments found necessary since the passage of the last Bill three years ago. The principal factor which had come into operation was the opening of the Panama Canal and the inauguration of a new trade route from America and other countries which passes through an area known to be infested by yellow fever. Danger was expected not only from the introduction of the disease, but also from its spread from place to place within Australia. A survey of the coastal towns of Queensland had been conducted to determine the distribution of *Stegomyia fasciata*, a domestic mosquito, which was the intermediary host of yellow fever. The survey was undertaken by Mr. F. H. Taylor, the entomologist attached to the Australian Institute of Tropical Medicine at Townsville. The results of his investigations were published in a book which had been distributed to honourable members. Maps indicated the number of places where yellow fever had been reported since 1909. The American authorities had done such excellent work in the Panama zone that since 1906 there had been nine cases, all of which were imported. The Bill was designed to invest the quarantine authorities with power to take the necessary steps to eradicate yellow fever in Australia. Statistics were given in regard to the number of cases of yellow fever in Manaos and Para, in South America. There had been 358 cases in Para in 1910. Steps taken to destroy the mosquitos diminished the number of cases to 49 in 1911, and to 3 in 1912. During the two years ending September, 1914, vessels arrived at Sydney or Newcastle from Chile, Peru, Ecuador and Mexico. The length of their voyages from the ports of these countries permitted the mosquitos to be imported and breed in this country. As a matter of fact it was not necessary for the mosquito to be imported and bred in Australia, since it was present in a wide area of this country. A map in the pamphlet showed that the mosquito had been found at all the coastal towns from Darwin to Newcastle, and also in inland towns as Ravenswood, Eidsvold and Cunnamulla. The difficulty in dealing with yellow fever arose from the small size of the mosquito and the presence of many mild cases of the disease which were not identified. The presence of the mosquito in every port in Queensland revealed the grave danger that would result from the presence of a case of yellow fever on shore. It was necessary to extend the powers of the Quarantine Act to enable steps to be taken to prevent mosquitos from breeding, and to keep them under control, not only on vessels from abroad, but also on vessels trading between Australian ports. Difficulties had arisen in connexion with the proper isolation of patients and contacts on vessels arriving from overseas. Power is given to prevent infected persons from leaving steamers which have arrived with infected persons on board. The recent epidemic of small-pox showed the need for more extended powers of isolation. If a contact from the ship Wodonga was noticed in the gallery of the House that evening, there was no power to detain the person until removal to a quarantine station. The State Governments of Victoria and Queensland had asked the Commonwealth to insist on more rigid inspection of persons arriving in their States from New South Wales. The soldiers at war in Turkey were in one of the worst countries of the world from the point of view of infection with disease. It was possible that they might be infected with some of these diseases, so that it might be necessary to take additional precautions on their account. The Commonwealth should for these reasons be equipped with adequate powers not only to deal with incoming vessels, but also to take immediate action when cases came ashore unrecognized or developed after landing. Prompt action was the essence of success in quarantine. The Commonwealth took power to regulate the preparation of sera. When the outbreak of small-pox in Sydney was at its height many persons commenced to manufacture vaccine on their own account and for their private benefit. That manufacture was entirely uncontrolled. The Government had no power to deal with it. Governmental supervision over such manufacture was necessary just as it was necessary to prescribe the conditions of manufacture. It was not intended to prevent manufacture, but it was intended to take such steps as had been taken in the United States of America, so that they

might insist on such preparations being manufactured under proper conditions.

Mr. Groom supported the Bill, which was needed to strengthen the Principal Act. The extirpation of the mosquito was of national importance. The late Governor of Queensland, Sir William McGregor, who had much tropical experience, had preached the absolute necessity of fighting the mosquito with all the powers that the State possessed. Steps had been taken in Queensland, especially in Brisbane, to minimize the danger. Areas were being drained, tanks protected, and the residents taught the use of oil and other substances against the insect. As the Minister had pointed out, the whole subject of quarantine was based on mutual co-operation between the States and the Commonwealth. He understood that the Legislature in New South Wales had strengthened the hands of the State Department of Health. No one could, however, contemplate the number of cases of small-pox at Newcastle without anxiety. He could not help thinking that if the problem had been tackled more vigorously at the beginning by the Government of New South Wales, small-pox would not have the hold that it had on New South Wales. It was a pity that the parent State had lagged behind the other States in dealing with this disease. He hoped the Commonwealth would make representations to that State until the disease was checked. The Bill would give power to the Minister to proclaim any particular area if he finds disease there. When the proclamation has been made he will be able to step in and take such measures as he considers desirable.

Mr. Kelly hoped that the value of the investigations on the mosquito that conveyed the infection of yellow fever would not be diminished by the absence of practical steps to enforce its lessons. The mosquito infected with yellow fever could live sixty-one days, reach our shores and infect human beings. These infected persons would serve as sources for the infection of the mosquitos found around the ports. He would urge the Minister not to pin his faith to Acts, but to eradicate the mosquitos in these ports. If that were done the risk of infection would be lost. This would remove the danger more effectively than any Quarantine or Immigration Restriction Act.

Mr. Webster, Postmaster-General, realized the necessity of restrictive measures to curtail the spread of disease. The danger would increase the more they linked Australia with other countries. At the present time we were face to face with a great evil, not in the diseases themselves, but in the proposed antidotes. Impartial authorities all over the world had no two opinions as to the action and uses of vaccines. Our soldiers had been forced to submit, in some cases, to eight different inoculations before leaving for the front. They had been inoculated against typhoid and a number of other diseases. The authorities had commenced to inoculate against meningitis. Two kinds of vaccines were used, though neither had been proved of value. They were practising on the boys who were going to the front. He regretted that they did not deal with these matters in a common-sense way. Cleanliness and sanitation were the two main methods employed in Japan. That country had abandoned the idea of vaccination. Cleanliness and santitation were fundamental in connexion with quarantine.

Mr. Groom interjected to add isolation.

Mr. Webster agreed that isolation was probably the first essential. He hoped that the day was not far distant when Australia would set an example to the rest of the world by refusing to allow a set of interested men, who were for ever developing antidote after antidote for various forms of disease, to practise on humanity, undermining the health of the community, and bringing about devastation. He would have liked to have seen provisions in this Bill to achieve the objects he had mentioned.

Mr. Joseph Cook twitted the Government on the display of differences in the Cabinet, instanced by the remarks of Mr. Webster. He advised the Postmaster-General to consult with Dr. Cumpston before addressing the House again on these questions. Perhaps these remarks heralded the approach of another bill to carry out these wishes of the Minister.

The question was then resolved in the affirmative, and the Bill was read a second time.

The House passed into Committee, and clause 1 was agreed to.

Consideration was given to clause 2 to amend section 4 of the Principal Act by inserting therein after the word "protection" the word "treatment." The section proposed to be amended read "quarantine has relation to the measures for the exclusion, detention, observation, segregation, isolation, protection and disinfection of vessels, persons, goods, animals, or plants. . ."

Mr. Groom asked for some explanation of the meaning of the word "treatment."

Mr. Tudor replied that the clause proposed a technical amendment to cover an expression used in clause 48, which read "that all goods ordered into quarantine should be treated and disinfected as prescribed." It provided the necessary measures to be applied to infected persons, vessels, and so on.

The clause was agreed to.

Clauses 3 to 9 and the title were agreed to.

The Bill was reported without amendment, and the report adopted.

The Standing Orders were suspended, and Mr. Tudor proposed that the Bill be read a third time.

Mr. Groom asked for information in regard to the intentions in connexion with the power granted by clause 9 to make regulations "for prescribing conditions under which any prophylactic or curative vaccine or serum may be prepared and offered for sale. If the Minister took power to regulate the manufacture and sale of serum within the States of the Commonwealth the question arose whether the Minister could legally take the step.

Dr. Carty Salmon thought the clause referred to was one of the most valuable in the Bill. The Commonwealth should be supreme in regard to the preparation and sale of any prophylactic serum or vaccine. Uniform legislation was needed to deal with the subject of vaccines and sera. There was a golden rule in the Constitution that, where the law of a State and the law of the Commonwealth were not consistent, the latter should prevail.

Mr. Tudor realized that legal questions would arise if they did not secure the co-operation of the States. During the outbreak of small-pox in Sydney, some months before, persons were preparing vaccines that were useless, and, in some cases, harmful. If they had possessed these powers at that time the Minister could have stipulated, by way of regulations, the conditions under which vaccines should be prepared and sold. He did not think any State Government would have objected to the Commonwealth exercising these powers.

The question was resolved in the affirmative.

The Bill was read a third time.

The Bill was returned from the House of Representatives to the Senate without amendments, on November 4, 1915.

TASMANIA.

On November 18, 1915, Mr. Fullerton asked the Chief Secretary what payments, other than salary up to the date of his suspension, had been made to Dr. McClintock, the late Chief Health Officer. In reply, the Honourable J. E. Ogden informed the honourable member that the salary paid for the period lying between the date of his suspension on July 28, 1915, and the date of his resignation on September 9, 1915, amounted to £71 9s. In addition, Dr. McClintock had been paid £75 for his services as Commissioner on General Hospitals in Tasmania, and £21 for his services as a Commissioner in connexion with the enquiry into the management of the Hobart General Hospital.

Special Correspondence.

(By our Special Correspondent.)

LONDON LETTER.

War Casualties.

In the *Quarterly Review* the cost of the war in wounds and disease is surveyed and commented upon in an interesting article from the pen of Sir William Osler, Regius Pro-

fessor of Physic at Oxford. In the course of his paper Sir William points out that:—

> "For the first ten months of the war—to May 31, 1915—the killed number 50,432, the equivalent of the annual toll taken in England alone by one bacillus, that of tubercle. Of the wounded (153,980), I am informed that up to date 60% have returned to duty. . . . The public should read these heavy and calamitous casualty lists with a knowledge that a very large proportion of the wounded get perfectly well. . . . The returns for disease are not yet available, but when the analysis is completed we shall find that coughs and colds, pneumonia, rheumatic fever, bronchitis, and muscular rheumatism, particularly what is known as trench rheumatism, have been responsible for a large proportion of the sickness.
>
> "More suppurating wounds have been seen by British surgeons in ten months than in the forty years since Lister's methods became general. The nature of the commoner wounds due to shell and shrapnel favour infection: and, in spite of early first-aid dressing, the germs are carried far into the tissues, and suppuration is inevitable. Trench warfare can never be aseptic. The uniforms of the men are caked with mud, which, in highly cultivated districts, always contains dangerous micro-organisms, . . . so that any wound, however slight, unless treated immediately, becomes infected. The one bright feature has been the frequency with which the high velocity bullet sterilizes its course, so that many of the perforating wounds of the chest, abdomen and limbs recover without suppuration."

With reference to the benefit derived from the general use of anti-tetanic serum, Sir William points out that no feature of the campaign, from the medical point of view, has been more gratifying, the incidence of tetanus having been strikingly lessened since every wounded man has been given, at the first dressing station, a protective inoculation. With regard to typhus fever, which has been very prevalent in Serbia, systematic efforts have been made by suitable bathing accommodation, thorough disinfection of clothing, the free use of insecticides, and the experimental trial of protective inoculation, to limit its ravages.

Some of the Canadian regiments suffered severely from epidemic cerebro-spinal fever, in regard to which Professor Osler says that:—

> "With fresh air, isolation of cases and of the person who carries the germ, and scrupulous personal cleanliness, the epidemics, as a rule, quickly subside, and with thorough serum treatment the mortality is greatly diminished."

The value of anti-typhoid inoculation is referred to in terms of the clearest and strongest conviction:—

> "Widespread experience in different countries shows that properly performed vaccination against typhoid fever protects for periods varying from a year to two or three years. There is little or no danger; nor is there any probability of transference of other disease or of rendering the subject more liable. Its use is indicated in soldiers and sailors, who are specially liable to be exposed to the germs of typhoid fever; for nurses and doctors, and for persons travelling in hot countries."

There have been very few cases, comparatively, of cholera, and these chiefly in Galicia and Hungary; and, so far, our armies in the east have been spared. On the whole, the country may be congratulated on the comparatively small part disease has so far played in the Great War.

Edinburgh University.

The Summer Graduation Ceremony at Edinburgh University was held on July 7, 1915, when 254 degrees were conferred.

The Principal of the University said, in addressing the graduates at the conclusion of the capping ceremony, that Scotland, Edinburgh, and the University were playing their part nobly in the war, but the effort they had made had not been accomplished without sacrifices.

Studies had been interrupted, and, in some cases, would never be resumed; professional careers, often most promising, had been broken. The death roll, alas, was large. Sixty-two names of men, almost all killed in action, either at sea or on land, gave evidence of the bitterness of the fighting. The governing classes of Germany, civil and military, were dominated by a reckless ambition to become the master nation in the world, irrespective of the rights and feelings of other nations. A colossal vanity had enfeebled their minds and caused them to believe and say that they were the source and centre of thought and effort, and that other nations should be subservient to them. That view of their world mission was not limited to the official classes, but was inculcated in the Universities and State schools, and formed a part of their educational system. It was significant that they had not claimed to be leaders in morals, for their methods of warfare were brutal and as cruel as those practised by the untutored savage. The Universities must continue to bear their share in the supreme task which lay before them. Neither they nor their countrymen could minimize their efforts. The *magnum opus* in which they were all engaged must, in the end, be crowned with the wreath of victory.

A revised edition of the roll of *alumni* serving in His Majesty's forces has been issued in the *Undergraduates' Magazine*. The number on service, if the cadets of the various Training Corps are included along with the five members of the Military Committee in the University, reaches the total of 4,007.

Mr. Balfour, the Chancellor, and Lord Kitchener, the Lord Rector of the University, have sent the following congratulatory messages:—

From Mr. Balfour:—

> "From our University there has gone forth to every corner of the world uncounted multitudes skilled in letters, in science, and in all the arts of healing. I am proud to think that when their country calls, and the freedom of mankind is in the balance, the Edinburgh students of to-day have proved themselves not less admirable in the stress of war than were their predecessors in the calm of peace."

From Lord Kitchener:—

> "I am happy to have this opportunity of bearing testimony to the high spirit of patriotic devotion which has moved so many members of the Universities of the United Kingdom to postpone all thought of academic success and to come forward at the call of their country in this great crisis, and, as your Lord Rector, I am indeed proud to feel that no fewer than 2,000 students from the University of Edinburgh are now serving in the Forces of the Crown. I am confident that they will worthily maintain the high traditions of their Alma Mater."

A New Antiseptic.

A paper was read by Professor Landouzy before the Académie des Sciences of Paris on August 4, 1915, describing the discovery by Dr. Alexis Carrel of the Rockefeller Institute, of an ideal antiseptic capable of destroying septic organisms in wounds without producing damage in the tissues.

Professor Landouzy explained that the most powerful antiseptic known to science was hypo-chloride of lime, but that this had up till now been of no practical utility on account of the difficulty of preserving it, and because of its acidity, which was injurious to human tissues. Dr. Carrel and Mr. Dakin, he said, had surmounted these difficulties by adding boric acid as a preservative, and carbonate of lime to counteract the acidity.

The new preparation had been applied to the most frightful wounds, with the result that within eight days their aspect had been modified in a way quite unknown under the old antiseptic processes. Cases of gangrene had been radically prevented at the very outset. Indeed, if the new antiseptic was applied in time, it was not too much to say that the infection of wounds might henceforward be considered impossible.

Correspondence.

THE VICTORIAN BRANCH OF THE BRITISH MEDICAL ASSOCIATION.

Sir,—Members of this Branch have received intimation that at the meeting of December 1, an amendment will be considered, with the object of increasing the subscription of junior members to £2 2s. The lower subscription of

£1 11s. 6d. was an inducement to juniors to become members of the Society, and so make the hand of the profession stronger. In my opinion, this increase will not only run these juniors out, but will deter others from joining. We must not forget that those young men just having been registered are at their wit's end to know how to make a start in life. In normal times they only get occasional work as locums or insurance work, neither of which leads to anything. When they at last make a start, it gives them all they can do to pay working expenses and get bread and butter, for only lodges are open to them. This may be termed "skimmed milk"; they have a job to get a little of this, even when they tout around for it. It is a year or two since the senior members had £1 1s. extra put on to their subscription. There was no grumbling, for the reason that they expected compensatory results, but, up to this date, where are they? We are told that the war was responsible, but had it not occurred, something else would have been found to take its place. All expenses have increased for medical, just like other people, so have their subscriptions, but their sources of income have remained the same, or become reduced. At the door of every medical man there is the dispensing and prescribing pharmacist, who, to an enormous degree, deflects the usual private fee, together with smaller fees for professional attendance from the medical man; and we never hear anything about him; presumably it is regarded as part of the legitimate trading of the pharmacist. This quackery is surely an outrage on the public, as well as our profession, and most certainly some measures should be adopted to put it down. Medical men are notoriously no business men. This is the whole secret. I am not a lodge practitioner, but I am heartily sick of inactivity, and for this reason it would take but little to make me tender my resignation. Let us be up and doing something.

Yours, etc.,

"MEDICO."

TREATMENT OF WATER IN THE FIELD.

Sir,—Reports from the fighting line indicate a large number of cases of dysentery amongst the troops there. The question of water sterilization naturally occurs to one's mind and I should like to remind readers of a very simple method of doing so, a method of which I have intimate personal experience. I refer to the *iodine method* invented by Captain Nessfield, I.M.S. Three tablets, A., B. and C. A., so far as I remember, a mixture of pot. iodide and pot. iodate; B., citric acid, and C., sod. hyposulph. The smallest size are for use in (8) eight gallons of water.

Mix A and B in a small quantity of the water to be sterilized, and nascent iodine is produced. Add this solution to the bulk of water, and allow five to ten minutes to elapse, stirring or shaking occasionally. Then add the C tablet, having dissolved it in a little of the sterilized water. This will clear it, and the water is fit to drink.

These tablets were used by Captain Nessfield in the Chitral Expedition, and the men under his charge were the only ones who did not suffer from cholera.

Personally, I have used them in camp and on the line of march in India over a period of over three months, and the troops under my care had absolutely no intestinal sickness. There were plenty of cases of dysentery amongst the troops on the road in front of us and those following us. The Medical Officer of the troops following us nearly died of dysentery, showing that there were possibilities of infection.

These tablets used to be advertised in the *Lancet* for some years, and were prepared by Smith & Stanistreet, chemists, Calcutta. The method is simple and sound, and no one ever objects to the taste; as a matter of fact, it is barely noticeable. A ready method of rapidly preparing water for surgical purposes is afforded, and can be relied upon.

The reason it is not the regular army method of sterilizing water is interesting. Captain Nessfield submitted the process to Sanitary Head Quarters in India, and was informed that the usefulness of iodine as a disinfectant had been known for very many years. He did not persist officially, but I knew of certain commanding officers who privately purchased the tablets for their troops, realizing, as sensible people must realize sooner or later, that boiling is nearly always impracticable.

I feel certain that, once tried, this method will never be abandoned.

Yours, etc.,

J. FORBES MACKENZIE,
Capt., R.A.M.C. (Retired).

110 Collins Street, Melbourne,
25th November, 1915.

WORKERS' COMPENSATION AND INSURANCE COMPANIES.

Sir,—It must occur to us sometimes that insurance societies look on us, speaking collectively of our profession, as a joke. My experience is probably the experience of others, and, frankly, I distrust them.

It happened to fall to my lot to have to attend to a young man with a nasty fracture at the lower end of the humerus, never an easy fracture. However, being usually pretty fortunate with fractures, I got it into nice position, and all was well. At the end of a week my patient informed me that he had been to see the insurance doctor and had been X-rayed and told that if it had not been properly set, it would have to be broken again or wired. I asked by whose instructions he had gone to the insurance doctor, and was told the insurance company, through their agent. I at once went and interviewed the manager of the company, and pointed out to him what risk they ran in thus chancing damage to a man's reputation. We all know how the public harps on the subject of a badly set fracture.

He was sorry, and said he saw my point. I especially, I might say, pointed out to him that I was only too glad to get the arm X-rayed for nothing, as the injured man could not afford a fee, but I asked him to note that a telephone ring to me would have been more courteous.

The Act, as he pointed out to me, says, "The employer may ask for another opinion on anyone receiving compensation under the Workers' Compensation Act." In this case, however, that was no excuse, as the patient had not yet received a penny.

This sort of thing, on top of the general cheek of the insurance people, becomes insufferable. Their general cheek consists in considerable part of asking us for as many certificates as they think they want, probably two or three long-winded, catchy forms to fill in, and when the time for paying for these certificates comes along we are told to collect from the poor, unfortunate patient, who gets, after a struggle and a wait, half his usual wage; say half £3, and that is a little more than the usual wage.

What the insurance people are trying to do is to trade on established custom, and our established custom seems to be writing certificates for nothing.

It is always the medical man who is supposed to do the charitable act, never the insurance company. We don't mind it very much, but when it means doing work for the company and saving them trouble, it is too rough. All we have to do is to refuse them their certificates, and then they will have to call on their own retained medical officers. These gentlemen will get a decent fee, and the worry and vexation will be lifted from our shoulders.

Yours, etc.,

"PRECIOUS LITTLE FOR SIXPENCE."

November 26, 1915.

Personal.

Dr. J. E. Bateman, of Sydney, will leave the Commonwealth by the R.M.S. *Malwa* for Egypt. He has been appointed to the staff of the Church Missionary Society's Hospital, Old Cairo, Egypt. It will be remembered that the late Dr. Maynard Pain worked at this hospital up to the time of his death, which occurred in 1912.

Medical Appointments.

Dr. Albert Curtis has been appointed Acting Medical Superintendent of the Hospital for the Insane, Beechworth, Victoria, during the absence of Dr. Catarinich (on leave).

Dr. R. P. St. J. Naylor has been appointed Acting Medical Superintendent of the Hospital for the Insane, Sunbury, in place of Dr. Lethbridge (on leave).

Dr. J. R. Talbot has been appointed Acting Medical Superintendent of the Hospital for the Insane, Ballarat, and the Receiving House, Ballarat, during the absence of Dr. W. H. Barker.

Dr. John Gray has been appointed an "Appointed Member" of the Licensing Court for the Licensing District of Corowa, for a period not exceeding six months.

Medical Appointments Vacant, etc.

For announcements of medical appointments vacant, assistants, locum tenentes sought, etc., see "Advertiser," page xvii.

Thargomindah Hospital, Medical Officer.

Hampden District Hospital, Friezland, Queensland, Resident Medical Officer.

Commonwealth of Australia, Chief Quarantine Officer, Laboratory Division.

Proserpine District Hospital, North Queensland, Medical Officer.

Broken Hill and District Hospital, N.S.W., Assistant Resident Medical Officer.

Proceedings of the Australasian Medical Boards.

VICTORIA.

The following have been registered under the provisions of the "Medical Act, 1915," as duly qualified medical practitioners:—

Roy Douglas Bartram, Nullawil, M.B., et. Ch.B., Melb., 1915

Samuel Leslie Germon, Normanby Road, Caulfield, M.B., et Ch.B. Melb., 1915.

Eric Ivo Lowther Graves, "Benalta," Nimmo Street, Essendon, M.B. et Ch.B., Melb., 1915.

John Kidd Collier Laing, 51 Park Street, South Yarra, M.B. et Ch.B. Melb., 1915.

Melrose Haltom Mailer, "Glencairn," Craigrossie Avenue, Moreland, M.B. et Ch.B. Melb., 1915.

Henry Fitzgerald Maudsley, 8 Collins Street, Melbourne, M.B. et Ch.B. Melb., 1915.

John Rhys Williams, 47 Raglan Street, East St. Kilda, M.B. et Ch.B. Melb., 1915.

Henry Hunter Griffith, "Marathon," Malvern Road, Toorak, M.B. et Ch.B. Melb., 1915.

James Warne, Mount Victor Road, East Kew, M.B. et Ch.B. Melb., 1915.

TASMANIA.

Thomas Herbert Goddard, M.B., Sydney, 1914, has been registered under the provisions of the Medical Act, 1908, as a duly qualified medical practitioner.

Births, Marriages, and Deaths.

The charge for inserting advertisements of Births, Marriages and Deaths is 5s., which sum should be forwarded in money orders or stamps with the notice, not later than the first post on Tuesday morning, in order to ensure insertion in the current issue.

DEATH.

KAYE.—At Bourke Hospital, New South Wales, on November 2, 1915, of double pneumonia, William Holland Kaye, M.R.C.S., L.R.C.P. (Lond.).

Diary for the Month.

Dec. 8.—South Sydney Medical Association, N.S.W.
Dec. 8.—Melbourne Pediatric Society.
Dec. 9.—Victorian Branch, B.M.A., Council.
Dec. 10.—Queensland Branch, B.M.A., Annual Meeting.
Dec. 14.—Tasmanian Branch, B.M.A., Monthly and Council.
Dec. 15.—Victorian Branch, B.M.A., Clinical.
Dec. 17.—N.S.W. Branch, Ordinary.
Dec. 17.—Queensland Branch, B.M.A., Council.
Dec. 21.—N.S.W. Branch, Executive and Finance Committee; Ethics Committee.
Dec. 28.—Organization and Science Committee; Medical Politics Committee.

Important Notice.

Medical practitioners are requested not to apply for any appointment referred to in the following table, without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, 429 Strand, London, W.C.

Branch.	APPOINTMENTS.
QUEENSLAND. (Hon. Sec. B.M.A. Building, Adelaide Street, Brisbane).	Brisbane United F.S. Institute.
WESTERN AUSTRALIA. (Hon. Sec. 230 St. George's Terrace, Perth).	Swan District Medical Officer. All Contract Practice Appointments in W.A
NEW SOUTH WALES. (Hon. Sec. 30-34 Elizabeth Street, Sydney).	Arncliffe F.S. Lodges. Australian Natives Association. Balmain United F.S. Dispensary. Burwood District F.S. Institute. Canterbury United F.S. Dispensary. Goulburn F.S. Association. Leichhardt and Petersham Dispensary. M.U. Oddfellows Med. Inst., Elizabeth Street, Sydney. Marrickville United Friendly Societies' Dispensary. Mullumbimby District Friendly Societies. N.S.W. Ambulance Association and Transport Brigade. N. Sydney United F.S. People's Prudential Benefit Society. Phœnix Mutual Provident Society. F.S. Lodges at Casino. F.S. Lodges at Lithgow. F.S. Lodges at Mudgee, (except A.H.C.G. & M.U.I.O.O.F.) F.S. Lodges at Orange. F.S. Lodges at Parramatta, Penrith, and Auburn. F.S. Lodges at Wellington. Newcastle Collieries— Killingworth. Seaham Nos. 1 and 2. West Wallsend.
SOUTH AUSTRALIA. (Hon. Sec. 3 North Terrace, Adelaide).	The F.S. Medical Assoc. Incorp., Adelaide.

EDITORIAL NOTICES.

Manuscripts forwarded to the office of this Journal cannot under any circumstances be returned.

Original articles forwarded for publication are understood to be offered to *The Medical Journal of Australia* alone, unless the contrary be stated.

All communications should be addressed to "The Editor," *The Medical Journal of Australia*, B.M.A. Building, 30-34 Elizabeth Street, Sydney, New South Wales.